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Module Introduction

In *Apple II Basic Features* and *Setting Up Apple II Computers*, you received an introduction to Apple II hardware and set up a representative Apple II computer, the Apple IIGS.

This module teaches you to use a representative Apple II computer, the Apple IIGS, to accomplish basic computing tasks, such as creating, saving, and filing documents. This module provides basic software concepts, introduces the two major operating systems for the Apple II family of computers, and gives you practice using both.

In order to better service Apple II computers, you need to understand how to operate them.

What You Will Learn

By the end of this module, you should be able to:

- Perform basic tasks using the two major operating systems for the Apple II family of computers
- Use a typical Apple IIGS application to create, save, and edit a document.
- Identify the basic components of the system software and firmware and explain their functions.
- Create and customize startup disks.

The Skills Checklist following this Module Introduction lists, in detail, the tasks you should be able to perform upon completion of this module.

How You Will Be Tested

The Module Test – This written test will help you verify that you can perform the tasks outlined in the Skills Checklist.

The Prerequisite Exam – Consisting of hands-on and written items, this test will verify that you have mastered the module skills listed and are ready for the Lab part of this course.

Throughout all of the tests and exercises, you will be able to refer to these instructional materials and to other Apple reference materials.

Module Introduction

Prerequisites to the Module

Before beginning this module, you must have satisfactorily completed these modules:

- Welcome to Apple Service
- Understanding ESD
- Apple II Basic Features
- Setting Up Apple II Computers

Materials provided for this module

The Prerequisite provides the following items for this module:

- This Module Workbook
- *Your Tour of the Apple IIGS* disk

Materials You Need to Provide

You will need to provide:

- an Apple IIGS that includes:
  - ADB keyboard and mouse
  - monitor
  - one Apple 5.25 Drive or UniDisk 5.25 drive
  - two Apple 3.5 Drives

- *Apple IIGS System Disk* (Version 5.0 or later)
- *Apple System Tools* disk (Version 5.0 or later)
- *Apple II System Utilities* diskette (ver. 3.1 or later)

Module Introduction

How the Module Is Organized

This module is presented in four parts:

Part 1 - Getting Started - provides an overview of system software and firmware as well as a hands-on introduction to using the Apple IIGS.

Part 2 - Using GS/OS, the Basics - gives you the basic skills needed for working with the Apple IIGS Operating System (GS/OS). You will learn how to view the contents of a disk, create a filing system, copy files and folders from disk to disk, and make backup copies of disks by manipulating icons on the screen.

Part 3 - Using GS/OS Advanced Tasks - examines the different files that make up the operating system, explains how those files are combined to make a startup disk, and gives you a chance to manipulate some of those files to customize your own startup disk.

Part 4 - Using ProDOS - provides a quick, hands-on tour of ProDOS, the alternate Apple IIGS operating system.

Continue with the Skills Checklist on following pages.

Skills Checklist

What is the Skills Checklist?

This is a list of tasks you should be able to perform at the conclusion of this module. The Prerequisite Exam (written and hands-on) will test these items. During the Lab part of this course, you will be expected to be able to perform all of these tasks.

How to Use the Checklist

Before starting the module, check the items on this list to see which tasks you can already perform. If you are confident that you can already perform certain tasks, you may decide to skip those parts of the module. Or you may decide to try the Module Test without going through the module.

After completing the module, check this list to make certain that you have mastered all of the skills before you attend the Prerequisite Exam and the Lab part of this course. If you feel uncertain about any of these tasks, return to the section indicated, review the information, and repeat the hands-on exercises.

		Task	Section Where it is Covered
____	1.	Identify what the following software terms mean: — Toolbox — Managers — Finder	Apple IIGS Hardware, Firmware, and Software
____	2.	Explain the relationship between ProDOS and GS/OS.	Exploring the System Disk
____	3.	Boot the Apple IIGS from a 3.5-inch disk.	Getting Started (Tour)
____	4.	Point, select and drag using the mouse.	Getting Started (Tour)
____	5.	Make selections from pull-down menus.	Getting Started (Tour)
____	6.	Use the GS/OS desktop: — identify icon types — select, move, and open icons — resize, move, scroll through, and close windows	Introduction to the Desktop; Working with the Desktop

Skills Checklist

	Task	Section Where it is Covered
____	7. Initialize a blank 3.5-inch disk.	Creating Backup Disks
____	8. Create backup disks.	Creating Backup Disks
____	9. Explain what a startup disk is.	Customizing Startup Disks
____	10. Customize a startup disk using the Installer.	Customizing Startup Disks
____	11. Identify the importance of: __ Update files __ Drivers __ FSTs	Exploring the System Disk; Customizing Startup Disks
____	12. Identify the contents of the System folder and match the contents with their functions	Exploring the System Disk
____	13. Use a typical word-processing application: __ Create a document __ Save a document __ Edit a document __ Save a document under different name	Creating Documents
____	14. Locate and file documents in a hierarchical filing system.	Working with Hierarchical Filing Systems
____	15. Copy files and folders __ from disk to disk __ into a folder on another disk __ from smaller to larger disk	Copying Files and Folders on the Desktop
____	16. Identify the options for handling duplicate items during the copying process.	Copying Files and Folders on the Desktop

Skills Checklist

		Task	Section Where it is Covered
___	17.	Operate in the ProDOS environment: _ Catalog a diskette _ Copy a diskette _ Boot the system using a 5.25-inch diskette	Working with ProDOS
___	18.	Match menu options in the ProDOS environment with their equivalent functions in the GS/OS environment.	Working with ProDOS

Continue with the next section — Getting Started: The Apple IIGS Tour.

Getting Started: The Apple IIGS Tour

Introduction

The disk, *Your Tour of the Apple IIGS*, provides an overview of how the Apple IIGS works. By completing this tour you will learn:

- how to use the mouse and keyboard
- how disks are formatted
- the four major categories of application software
- the general procedure for editing, saving, and printing a word-processing document

This section provides directions for using *Your Tour of the Apple IIGS* and a brief summary of the relevant points.

Materials Needed

For this activity you have been provided:

- *Your Tour of the Apple IIGS* disk

You must provide:

- An Apple IIGS system set up and configured as follows:
  - Apple IIGS with minimum 512K of RAM
  - ADB keyboard and mouse
  - monitor
  - an Apple 3.5-inch disk drive set as the startup drive

Starting the Tour

Follow these steps to use the tour disk:

1. If the system is still on, turn it off.
2. Carefully insert the tour disk into the startup drive. Insert the metal-tipped edge first, label side up, as shown in Figure 1.

Getting Started: The Apple IIGS Tour

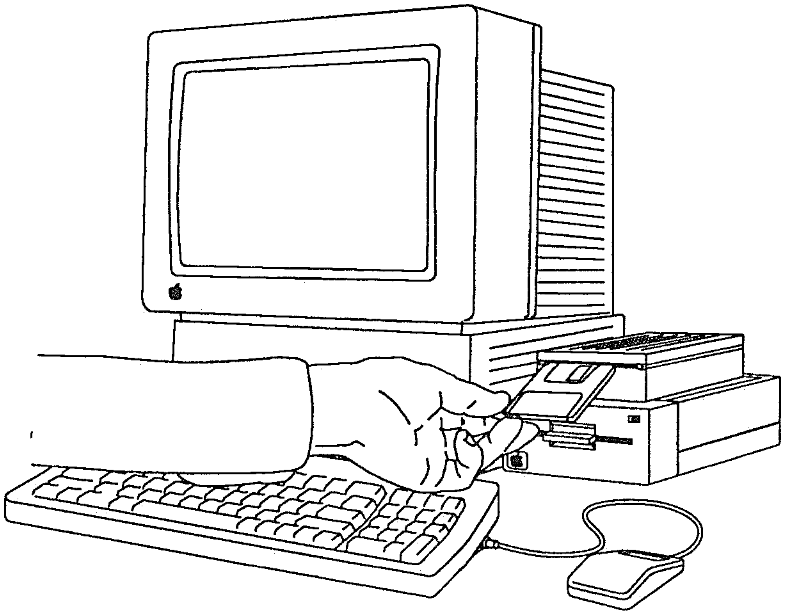


Figure 1. Inserting the tour disk

3. Power on the monitor and the computer.

   The Apple IIGS produces a humming sound as it loads information from the disk into memory. A message appears on the screen advising you that the loading process will take a few minutes.

4. Follow the directions as they appear on the screen. Go through the topics listed on the main menu. You may skip the topics entitled "Identifying Parts" and "Why Program?" if you wish.

   Take as much time as you need. You can repeat parts of the tour if you need to.

Getting Started: The Apple IIGS Tour

5. When you are confident that you can perform the tasks covered in the tour, exit by selecting Quit from the main menu.

Tour Disk Summary

You learned basic operational skills while taking the Tour:

- Operating the mouse
  - Pointing and clicking
  - Selecting an object
  - Dragging an object.
  - Make a selection from a pull-down menu

- Identifying the keys on the keyboard

Using those skills, you worked with a sample word-processing document and learned to:

- Change the margins
- Edit text
- Save a document
- Print a document

In addition you learned:

- how information is entered into the Random Access Memory (RAM), then saved onto disks for storage and later retrieval

- the four main categories of software applications

The following summarizes the important parts of the Tour:

The Keyboard

The keyboard has the same alphanumeric characters found on a typewriter keyboard. It also has function keys not usually found on a typewriter.

Getting Started:
The Apple IIGS Tour

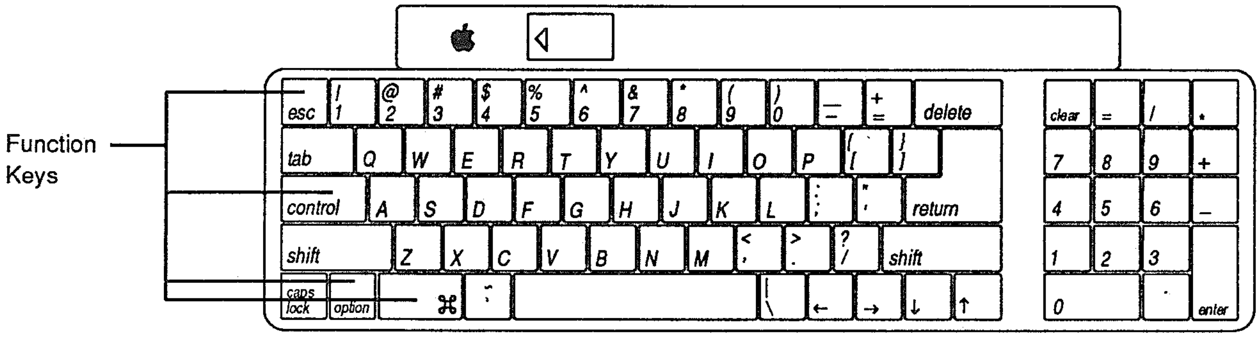


Figure 2. The Apple IIGS keyboard

Delete key:	Erases text, one letter at a time, or entire passages that have first been selected.
Return key:	Used when starting a new paragraph. Normally the text on the screen will wrap around automatically.
Command, Control and Option Keys:	Used in combination with other keys to create certain special effects. What those specific effects and key combinations are depend upon the application being used.
Arrow Keys:	Move the insertion point or highlight around the screen.
Escape (Esc) Key:	Interrupts a program or returns you to the Main Menu

Getting Started: The Apple IIGS Tour

Information Flow

Information is entered through the input devices (keyboard and mouse), held in RAM, which is displayed on the screen; and then written (saved) onto disks in the disk drive. Figure 3 illustrates this information flow.

Information stored on disks can be loaded into RAM, changed, and then saved again under a new or old name.

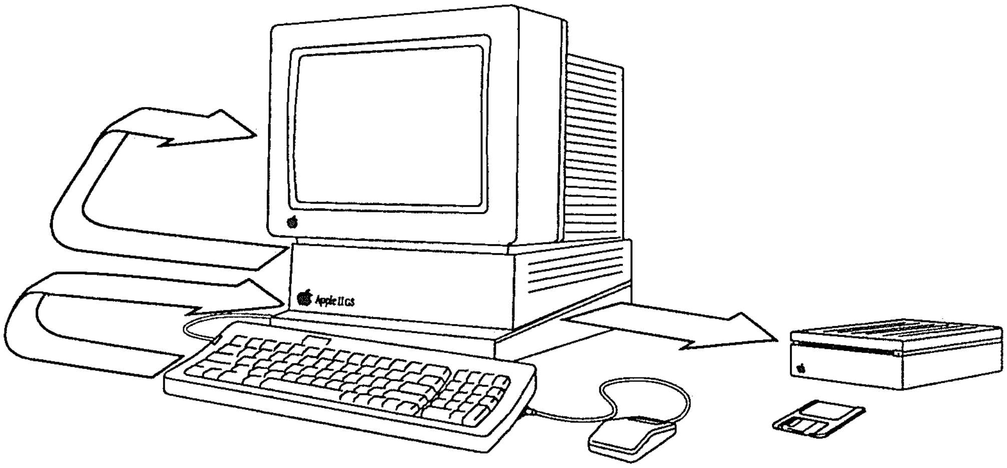
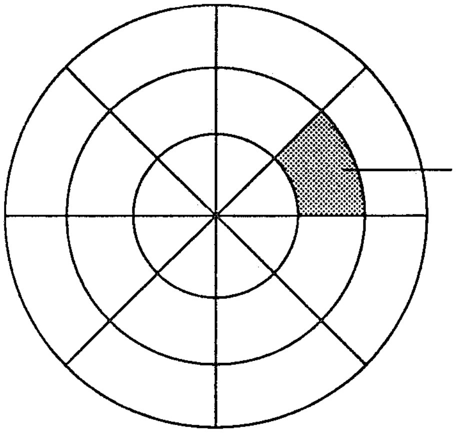


Figure 3. The flow of information

Getting Started: The Apple IIGS Tour

Formatting disks

Before the information can be saved onto a disk, that disk must be formatted to receive information. Formatting sets up a grid on the disk that allows the computer to keep track of what is saved there. (See Figure 4.)



The Apple IIGS writes information onto the disk under the file name you give it.

Figure 4. Formatted disk

If you make changes to a disk file and then save it onto the disk under a new file name, a new file is created, leaving the old file intact. If you save the changes under the old file name, the new version replaces the old.

Getting Started:
The Apple IIGS Tour

Working With Applications

Applications are programs that enable the computer to perform specialized tasks. The most common applications fall into one of four categories: database, spreadsheet, graphics, and word processing.

Word processing applications enable the computer to create text documents much like a typewriter does, but with greater ease and flexibility.

The following outlines the basic tasks performed by word processing applications. You will find many of these commands used in other types of applications.

Editing a Document

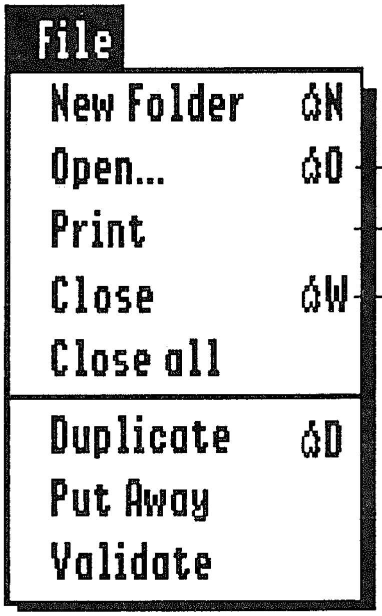
You use the I-beam, the insertion point, and text selection to edit (make changes to) documents.

I-Beam	When you move the mouse pointer onto a screen of text, it turns into an I-beam.
Insertion point	Use the I-beam to position the insertion point—the point at which text is entered or deleted from the document—anywhere on the document.
Selecting text	To select text or graphics, drag the I-beam over them.

Getting Started: The Apple IIGS Tour

Menu Commands

Figures 5 and 6 summarize important commands found on the pull-down menus.



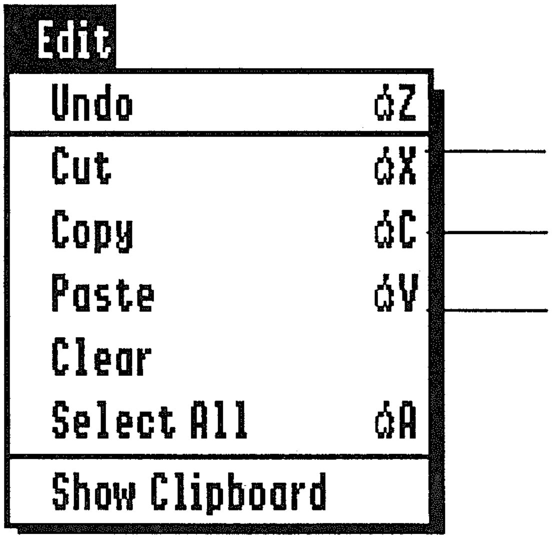
Opens a selected file

Prints a selected file

Closes a selected file

Figure 5. File menu commands

Getting Started: The Apple IIGS Tour



removes selected text or graphic from page and places it on clipboard

places selected text or graphic on clipboard without removing from page

inserts contents of clipboard at selected location

Figure 6. Edit menu commands

Continue with the next section—Apple IIGS Hardware, Firmware, and Software.

Apple IIGS Hardware, Firmware and Software

Introduction

This section presents an overview of Apple II hardware, firmware, and software. It focuses on how Apple IIGS system software works with firmware and hardware to accomplish user tasks.

This section will provide you with a basic understanding of how system software and firmware work together to create the user interface, run peripheral devices, and carry out commands issued by the user.

By the end of this section, you will be able to identify the functions of :

- Operating system
- Loader
- Drivers
- Toolbox
- Managers
- QuickDraw II

Terms

The term **hardware** refers to the computer and the peripherals in general, and specifically to the circuitry contained within these devices.

The term **firmware**, as you learned in the module *Setting Up Apple II Computers*, refers to the software programs built into the computer hardware. The Control Panel, in the ROM of the Apple IIGS, is an example of a firmware program. Other kinds of firmware are built into the circuitry of the ports and interface cards, to help the software work with the hardware.

The term **software** refers to programs written in C, PASCAL, BASIC, or other programming languages and stored on disks. The *Apple IIGS System Disk*, is one example of software.

Software can be divided into two categories: system software and application software. You learned about application software in *Your Tour of the Apple IIGS.* System software, on the other hand, is software designed to tell the computer how to do certain tasks, such as store and access information on disks.

Apple IIGS Hardware, Firmware and Software

Operating systems are software programs that control the way a computer handles information. The operating system determines the way information is saved onto a disk, the way a new disk is formatted, and the way the computer communicates with peripheral devices.

There is more than one operating system for the Apple II family of computers:

- DOS 3.3 (Disk Operating System)
- ProDOS (Professional Disk Operating System)
- GS/OS (Apple IIGS Operating System)

Two of them, GS/OS and ProDOS, share the same file system. This means they format and save information onto disks the same way.

The operating system also determines the **user interface** —the way that information is presented on the screen and the way that the user and computer communicate.

Your Tour of the Apple IIGS gave you a good idea of how the GS/OS user interface works: you tell the computer what to do by selecting commands from pull-down menus with the mouse.

ProDOS uses an entirely different interface in which the user issues commands through the keyboard. You will learn more about ProDOS at the end of this module. For the rest of this module, you will learn about GS/OS.

The operating systems are supported by software and firmware routines called **tools** or **tool sets.** These routines are "called" by application software to perform certain tasks, such as creating pull-down menus. This means that programmers do not have to write extra lines of code to create pull-down menus for each application.

The next section discusses the different levels of software and firmware in greater detail.

The Pyramid

It helps to think of the Apple IIGS system as a pyramid, with the user at the top and the hardware at the bottom. (See Figure 7.) Application software, system software, and firmware connect the user to the hardware. These "middle layers" translate commands issued by the user into actions performed by the hardware.

Apple IIGS Hardware, Firmware and Software

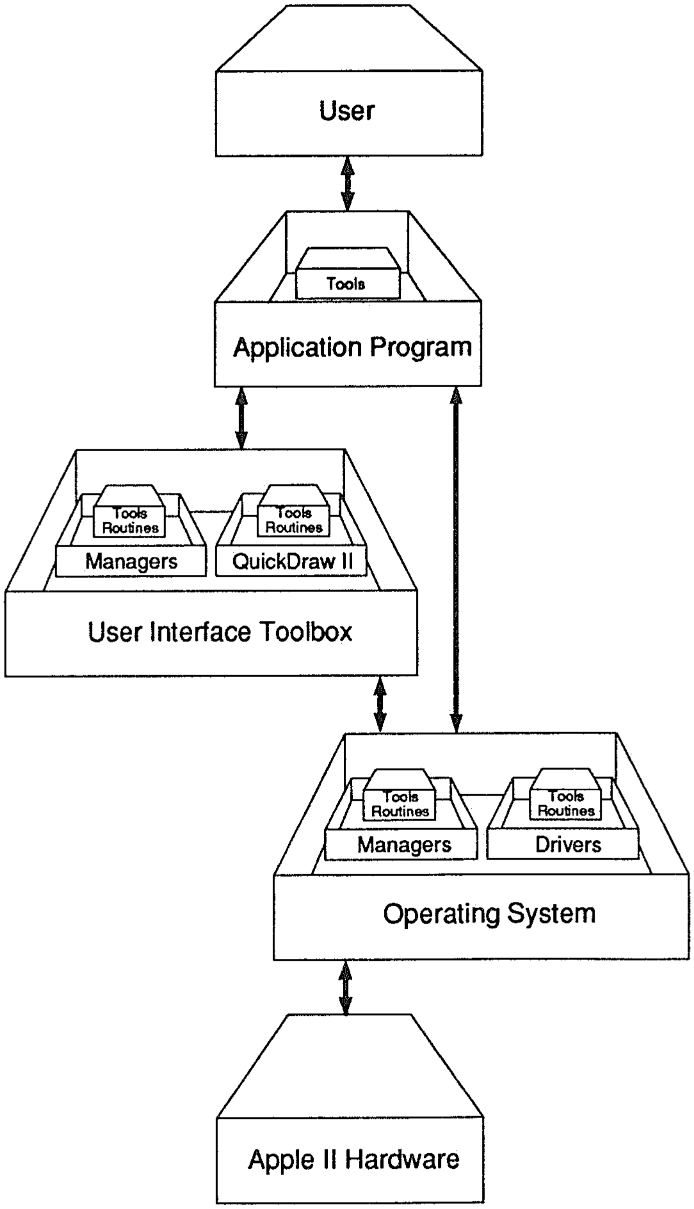


Figure 7. Apple IIGS system architecture

The following examines the software and firmware layers of the pyramid.

Note: *This diagram has been simplified for this discussion. As you will see later, some of the elements shown above can be found in both firmware and system software levels.*

Apple IIGS Hardware, Firmware and Software

Application software

As you can see from the diagram, the user interacts with the computer only at the application level.

There are three types of application software:

- **The Finder,** which is the application you use to operate the desktop, launch other applications, and issue commands to the GS/OS.
- **Applications**, in a narrower sense, are stand-alone programs that take control of the computer when they are launched. The simulated word processor you worked with in *Your Tour of the Apple IIGS* is an example of an application.
- **Desk Accessories (DAs)** are mini-applications that can be run from within another application. One example might be a calculator, which could be used while running a word processing program. You will learn more about Desk Accessories in a later section.

System Software

Apple IIGS system software consists of programs and sets of instructions that tell the computer how to run. These are found on the Apple IIGS System Disk and System Tools disk. Some of the key programs are listed below.

- **GS/OS** is the operating system for the Apple IIGS. It controls, among other things, access to disk files. It is closely connected to, but separate from the Finder.
- **Resource manager** is a program that works with GS/OS to relocate and load program segments from disk into RAM.
- **Toolbox,** also known as Tool Sets or just Tools, are useful sets of data and instructions **(routines)** which applications may use (or **call**) to perform many commonly needed functions. For instance, the routines used to create the desktop interface are provided by desktop tools.

  Tools make it easier and quicker for developers to create applications for the Apple IIGS.
- **Drivers**, or device drivers, are special sets of instructions that tell the system how to run peripheral devices such as printers and disk drives.

Apple IIGS Hardware, Firmware and Software

Firmware

Many types of programs found in system software are also built into the ROM. As you learned earlier, these programs are called firmware.

- **Tools** are useful sets of data and instructions (**routines**) which applications may use (or **call**) to perform many commonly needed functions. Some tools are built into the ROM, while others are stored on disk as software.
- **Drivers,** the sets of instructions that tell the computer how to run peripheral devices, are sometimes built into the ROM.
- **Resident Desk Accessories (DAs)**, like the Control Panel program, are built right into the ROM. That's why you can access these programs without booting up a disk.

The Toolbox

Routines in the Toolbox are grouped according to function into sets of software and firmware **Managers**. The following are some of the important managers available in the Apple IIGS Toolbox:

Tool Locater

Some tools are in ROM, while some must be loaded from disk into RAM. When called on by an application, the ROM-based Tool Locater locates a given tool in ROM or RAM.

Memory Manager

The Memory Manager controls an application's use of memory. By allotting certain portions of the memory to certain programs, it allows DAs to run on top of applications, such as word processors. It is located in ROM.

QuickDraw II

QuickDraw II is a set of graphics routines, some in ROM, some in RAM, that draw simple shapes, called *primitive objects*, and text characters on the screen. For example, applications, such as the Finder, use QuickDraw II routines to put text in display windows on the desktop.

Print Manager

The Print Manager controls printing in two ways:

- it uses standard QuickDraw II routines to print text or graphics and,
- it calls upon the printing drivers to activate the printer

Apple IIGS Hardware, Firmware and Software

Desktop Tools

The desktop tools include several RAM-based tools for supporting the Apple IIGS desktop. A few examples are listed here:

- Menu manager, which supports the use of pull-down menus
- Window manager, which creates, activates, moves and resizes windows and allows applications to display information in them
- Control manager, which controls objects such as buttons, check boxes, and scroll bars
- Dialog manager, displays alerts and dialog boxes

You will learn more about windows, dialog boxes, and the desktop in the next few sections.

Apple IIGS Hardware, Firmware and Software

An Example

This section shows how the different levels of the Apple IIGS system interact when carrying out a typical command.

In this example, the user tells the word processing application to Print (by selecting Print from a pull-down menu). The application sends the data to the Print Manager (in the Toolbox). The Print Manager calls up QuickDraw II routines, which allow the printing of graphics and text, and transfers the data to the printer driver, which in turn, activates the printer (See Figure 8).

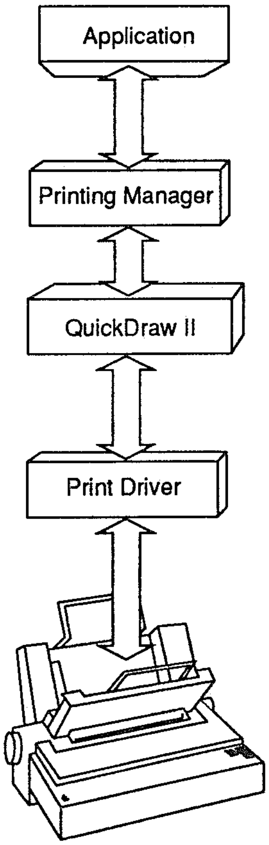


Figure 8. Flow of information between computer and peripheral device during printing

Continue with the next section—Exercise: Hardware, Firmware and Software.

Exercise: Hardware, Firmware and Software

Part 1

Use this exercise to check your understanding of the interaction of software, firmware, and hardware in the Apple IIGS system.

Directions

Match each statement to the appropriate system level. Write the corresponding letter in the space provided. Letters may be used more than once.

System levels:

A. Application software
B. System software
C. Firmware

_____ 1. Software programs, such as word processors, are at this level.

_____ 2. Although the Finder works closely with the operating system to create the user interface, it is *actually* part of this level.

_____ 3. Contains some of the tools and drivers, but not the operating system.

_____ 4. Contains the Resource mananger.

_____ 5. Resident DAs, like the Control Panel Program are contained in this level.

_____ 6. The level at which GS/OS operates.

Continue with Part 2 of this exercise.

Exercise: Hardware, Firmware and Software

Part 2

Here is another list of terms followed by a list of statements

Directions

Match each statement to the appropriate system term Write the corresponding letter in the space provided. Letters may be used more than once.

System terms:

A. Drivers
B. Toolbox
C. Managers
D. QuickDraw II
E. ProDOS
F. Resource Manager
G Desktop tools
H. Memory manager

_____ 1. Specialized managers that support and create the desktop.

_____ 2. Routines that create shapes and text on the screen.

_____ 3. Instructions that handle the exchange of information between the Apple IIGS and peripheral devices.

_____ 4. is a set of tools that works with GS/OS to relocate and load program segments from disk into RAM.

_____ 5. a collection of routines, some built into the ROM, some on disk, that applications can call upon to perform many commonly needed functions.

_____ 6. Routines in the Toolbox grouped according to function.

_____ 7. Controls each application's use of memory and makes it possible to run mini-applications, such as Desk Accessories, on top of larger applications, such as word processors.

_____ 8. The operating system for the Apple II that uses only the keyboard to issue commands to the CPU.

_____ 9. Applications, such as the Finder, use this to put text in display windows on the desktop.

Exercise: Hardware, Firmware and Software

Compare your answers to those on the following page.

Exercise: Hardware, Firmware, Software (Answers)

Part 1

A. Application software
B. System software
C. Firmware

1. A
2. A
3. C
4. B
5. C
6. B

Part 2

System terms:

A. Drivers
B. Toolbox
C. Managers
D. QuickDraw II
E. ProDOS
F. Resource Manager
G Desktop tools
H. Memory manager

1. G
2. D
3. A
4. F
5. B
6. C
7. H
8. E
9. D

Continue with the next section—Introduction to the Desktop.

Introduction to the Desktop

Introduction

This section introduces you to the GS/OS desktop interface. By the end of this section you will be able to:

- Explain how the GS/OS differs from previous operating systems designed for the Apple II family of computers
- Identify the main components of the desktop

GS/OS and the Desktop Interface

The Apple IIGS Operating System (GS/OS) is the latest and most sophisticated operating system developed for the Apple II family of computers.

Earlier operating systems were keyboard-driven; they required the user to type in commands. GS/OS is mouse-driven; you tell the computer what to do by using the mouse to select and move objects on the screen.

The GS/OS desktop interface represents computer functions in concrete, visual terms. This makes them easy to remember and use.

This kind of interface is sometimes called the **graphics mode**. Images and words are created on the screen from mosaics of dots or **pixels** (short for picture elements).

Introduction to the Desktop

The three main components to the desktop are as follows:

1) Pull-down menus (as shown in Figure 9), which can be pulled down, when needed, from the menu bar at the top of the screen. You had some practice using these during *Your Tour of the Apple IIGS* in the previous section.

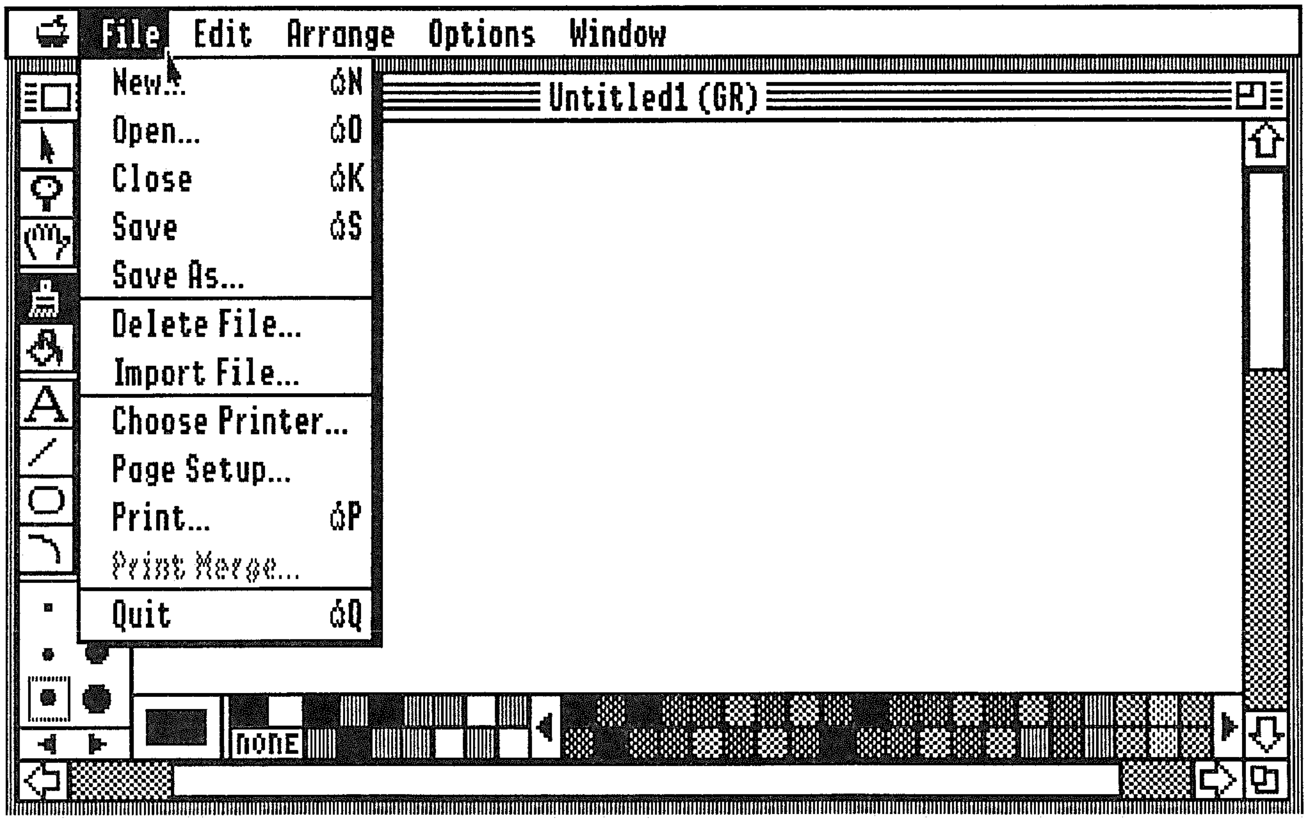


Figure 9. A Pull-down menu

Introduction to the Desktop

2) Icons (small pictures) which represent disk files as shown in Figure 10. Disk files include applications, documents, and other information stored on disks.

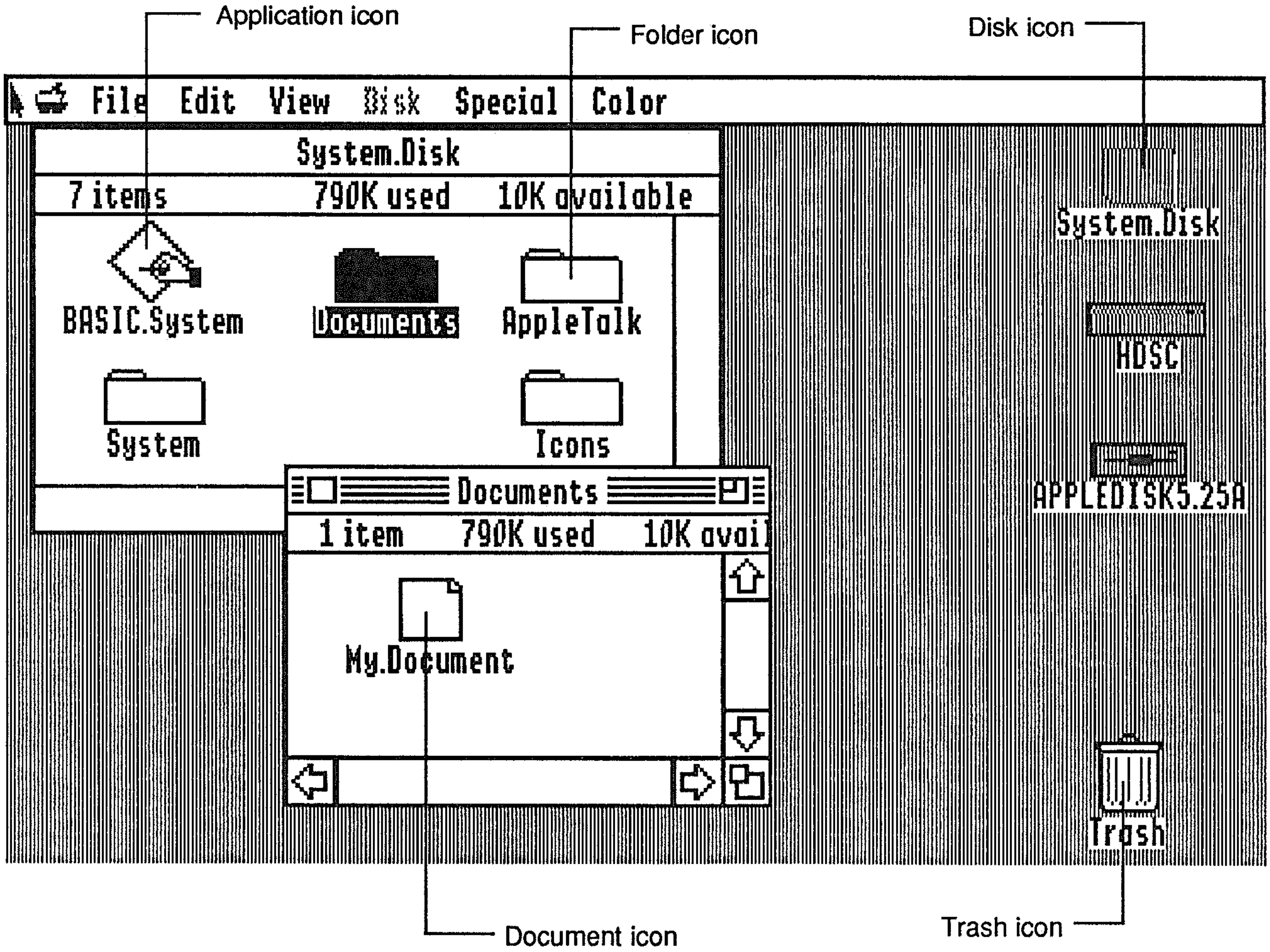
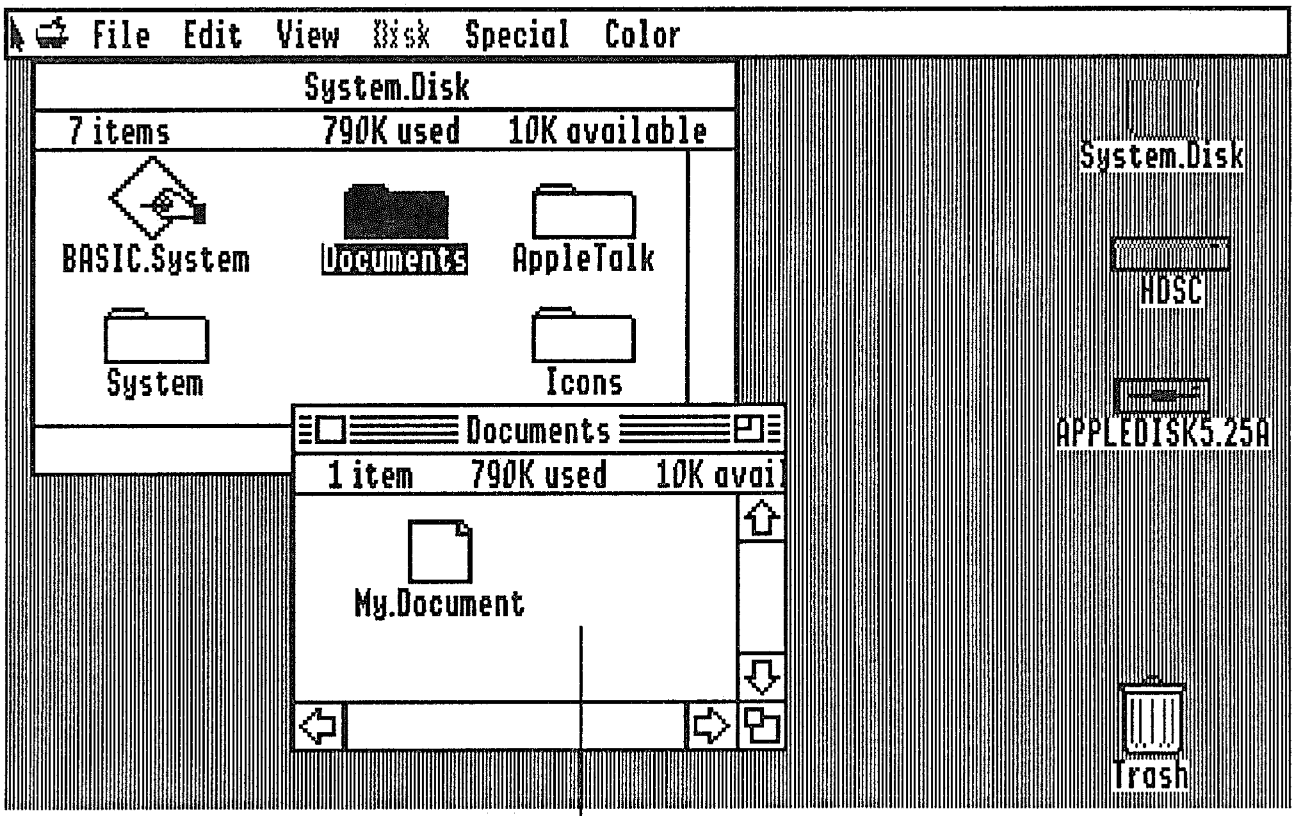


Figure 10. Desktop icons

Introduction to the Desktop

3) Windows, which allow you to view the contents of each icon as shown in Figure 11.



Window

Figure 11. Window on the desktop

Introduction to the Desktop

You can format disks and perform other tasks by manipulating these objects on the desktop.

The desktop is created by a special application called the **Finder**. You will often find the terms "desktop" and "Finder" used interchangeably. The Finder allows you to manipulate menus, icons and windows using the mouse —much as you would move objects on a desktop. It also allows you to:

- Start other applications
- Switch from one application to another
- Manage information stored on disks

You will get a chance to work with Finder in the next section.

Continue with the next section—Working with the Desktop.

Working with the Desktop

Introduction

In this section you will develop the necessary skills for using the Apple IIGS desktop. By the end of this section you will be able to:

- Boot the Apple IIGS from the Apple IIGS System Disk
- Distinguish different types of icons
- Select, move, and open up an icon
- Activate, move, resize, and scroll through a window
- Launch an application
- Shut down the Apple IIGS

Materials Needed

For this activity you will need:

- An Apple IIGS system set up and configured as follows:
  - Apple IIGS with minimum 512K of RAM
  - ADB keyboard and mouse
  - Monitor
  - Apple 3.5-inch disk drive set as the startup drive.*
- An Apple IIGS System Disk

* *UniDisk 3.5 drives will not work with GS/OS until the proper driver has been installed on the System Disk. For a discussion of drivers and startup disks, see the section on startup disks in Part 3 of this module.*

Start up GS/OS

The System Disk contains the operating system files necessary for starting up the Apple IIGS. You will sometimes see it referred to as the **startup disk**. Any disk containing the files required to start up the computer is a startup disk. Starting up a computer with a startup disk is called **booting**.

Locking Disks

Before you boot up the *Apple IIGS System Disk*, you need to **write-protect**, or **lock**, the disk. This will prevent information on the disk from being changed or accidentally erased.

1. Slide the tab so that the square opening in the corner of the disk is **uncovered**. (See Figure 12).

Working with the Desktop

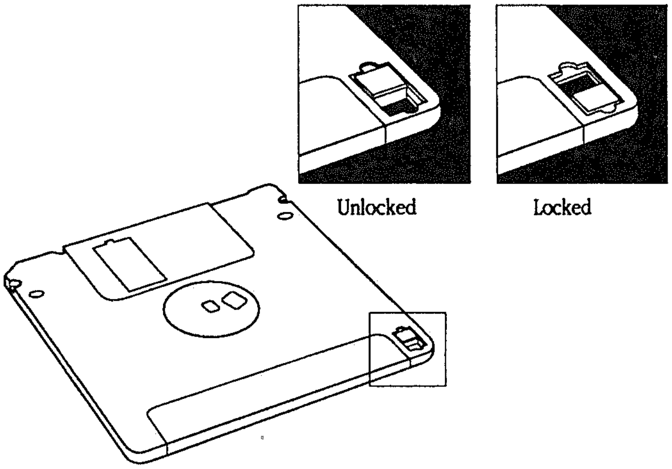


Figure 12. Locking a Disk

Booting Up

2. Boot up from the locked system disk using one of the following methods:

...with the power off

- Place the locked *Apple IIGS System Disk* into the startup drive.
- Turn on the power.

...with the power already on

- Place the locked *Apple IIGS System Disk* into the startup drive.
- Hold down the *Command, Control and Reset* keys at the same time.
- Release the Reset key first, then the other two.

After several seconds, the desktop should appear, as in Figure 13.

Working with the Desktop

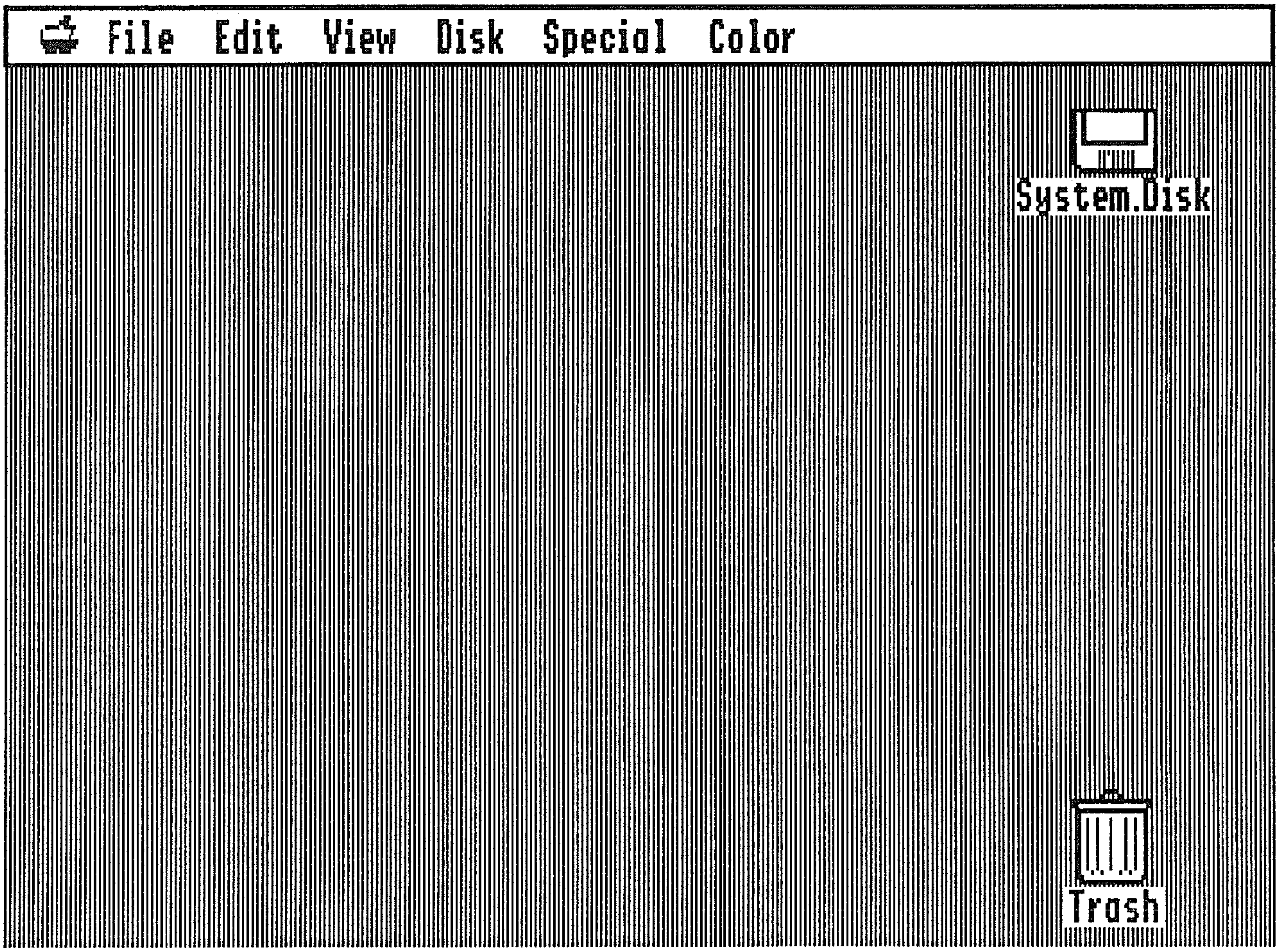


Figure 13. The GS/OS desktop

You should see at least two icons on the desktop, the SYSTEM.DISK and the Trash icon. (There may be more, depending upon how your system is configured. You may ignore these others for now).

Important

If you see a window (a rectangle containing several icons), probably somebody else has used this disk before you. For the purposes of this activity, collapse each window back into its respective icon by clicking on the **close** box in the upper-left corner of the window. Opening and closing windows will be discussed shortly.

Working with the Desktop

Exploring the Desktop

This section will orient you to the three main components of the Apple IIGS desktop: icons, pull-down menus and windows.

Selecting and Moving Icons

Icons may be moved to any part of the desktop and set in any arrangement you want. As you will see later, the ability to select and move icons is the key to copying, filing, and erasing disk files.

3. Position the pointer on the Trash icon.

4. Click the icon by pressing and releasing the mouse button. (See Figure 14.)

   As you click, the Trash icon is highlighted or **selected.**

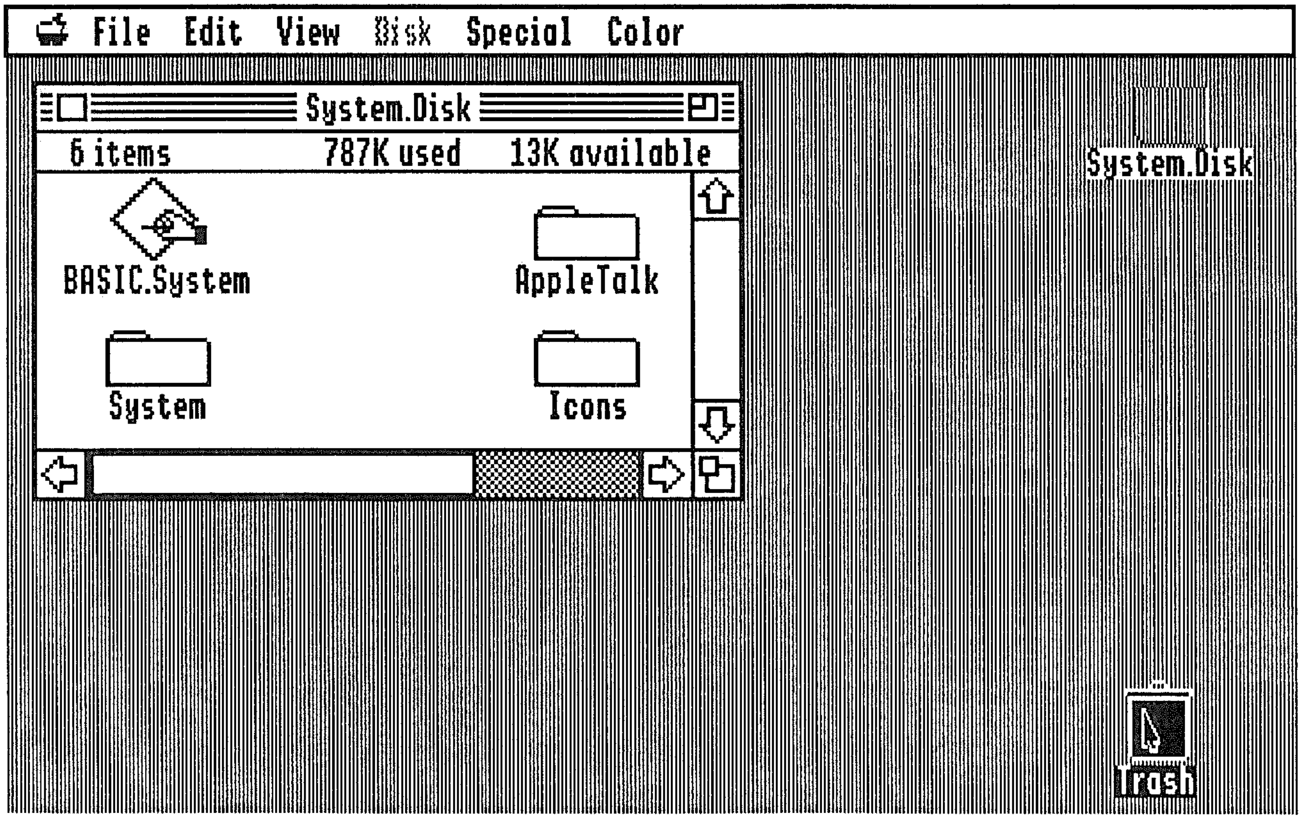


Figure 14. Selecting the Trash icon

Working with the Desktop

5. Now select the SYSTEM.DISK disk icon.

   When the SYSTEM.DISK icon is selected, the Trash icon is no longer selected.

6. Drag the SYSTEM.DISK icon to change its position on the desktop.

   Position the pointer on the icon. Press and hold down the mouse button while you move the mouse.

   When you release the mouse button, the icon will snap into its new position.

7. Practice moving the SYSTEM.DISK and Trash icons.

   You can deselect an icon by clicking anywhere on the desktop (other than the icon itself).

   Return the icons to their original positions before continuing with this activity.

Pull-Down Menus

You used pull-down menus when you used the *Your Tour of the Apple IIGS* disk.

8. Open the File menu.

   (Position the pointer over the word File in the menu bar and hold down the mouse button. The menu remains "pulled down" as long as you keep pressing on the mouse button.)

Notice when you pull down the menu, certain commands are dimmed. Commands that appear in regular type are commands that can be chosen now. Dimmed commands cannot be chosen now. If you try to choose a dimmed command, you'll see a message telling you what you need to do before the command can be chosen.

9. Select SYSTEM.DISK and then open the File menu again.

Notice that the Open command appears in regular type. You will use this command to open up the SYSTEM.DISK icon.

Working with the Desktop

Opening Up an Icon

Opening an icon creates a window that displays the contents of that icon. Try opening the SYSTEM.DISK icon in the upper right corner of your screen.

10. Select the SYSTEM.DISK icon, if it is not already selected.

11. Pull down the File menu and choose Open.

    (Drag the pointer down the list of options until "Open" is highlighted, then release the mouse button.)

You should see a window like the one shown in Figure 14 . You will learn about all the different parts of the window after we finish our discussion about icons.

Icon Types

You should now see four different types of icons on the desktop as shown in Figure 15. As was mentioned in the last section, icons represent disk files. Each type of icon represents a different type of file.

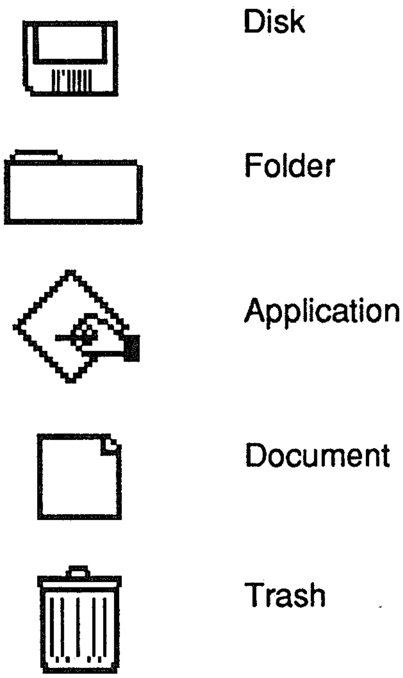


Figure 15. Icon types

Working with the Desktop

Opening a specific type of icon produces a specific kind of window.

- Folder and disk icons produce windows on the desktop, which let you view the contents of that disk or folder. Opening the System.Disk icon produces the System Disk window as shown in Figure 16.

- Opening an application icon launches that application, producing a window that fills the entire screen.

- Opening a document icon usually launches the corresponding application and opens that document.

- Opening the Trash icon — where unwanted folders are discarded — produces a window that allows you to view the contents of this special folder. The Trash icon will be discussed in a later activity.

Important: *Do not open the BASIC application icon. You will get a chance to launch that application at the end of this section. If you have already launched it by mistake, go to "Launching an Application " at the end of this section and read the directions for returning to the desktop.*

Working with the Desktop

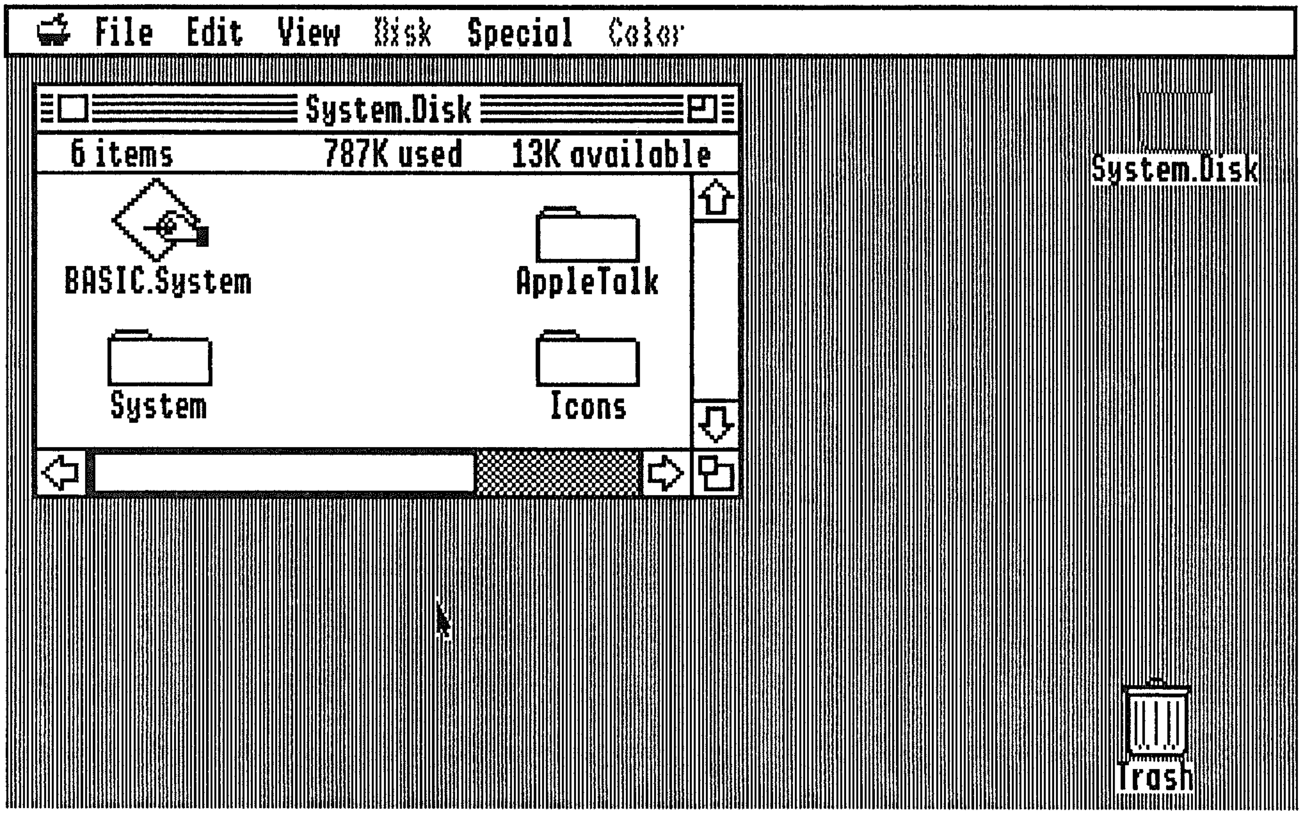


Figure 16. The Apple IIGS System Disk window

Working with the Desktop

In the next section you will use the three parts of the desktop to rearrange, resize, and manipulate windows on the desktop

Working With Windows

To locate and access disk files, you must be able to manipulate windows on the desktop. The skills outlined below are necessary for using the desktop's hierarchical filing system, which will be presented in a later section of this module.

Scrolling

The window isn't large enough to display the complete contents of SYSTEM.DISK. Using the **scroll bars**, you can display the rest of the disk contents.

12. Drag the scroll bar in the horizontal scroll box all the way to the right. (See Figure 17.)

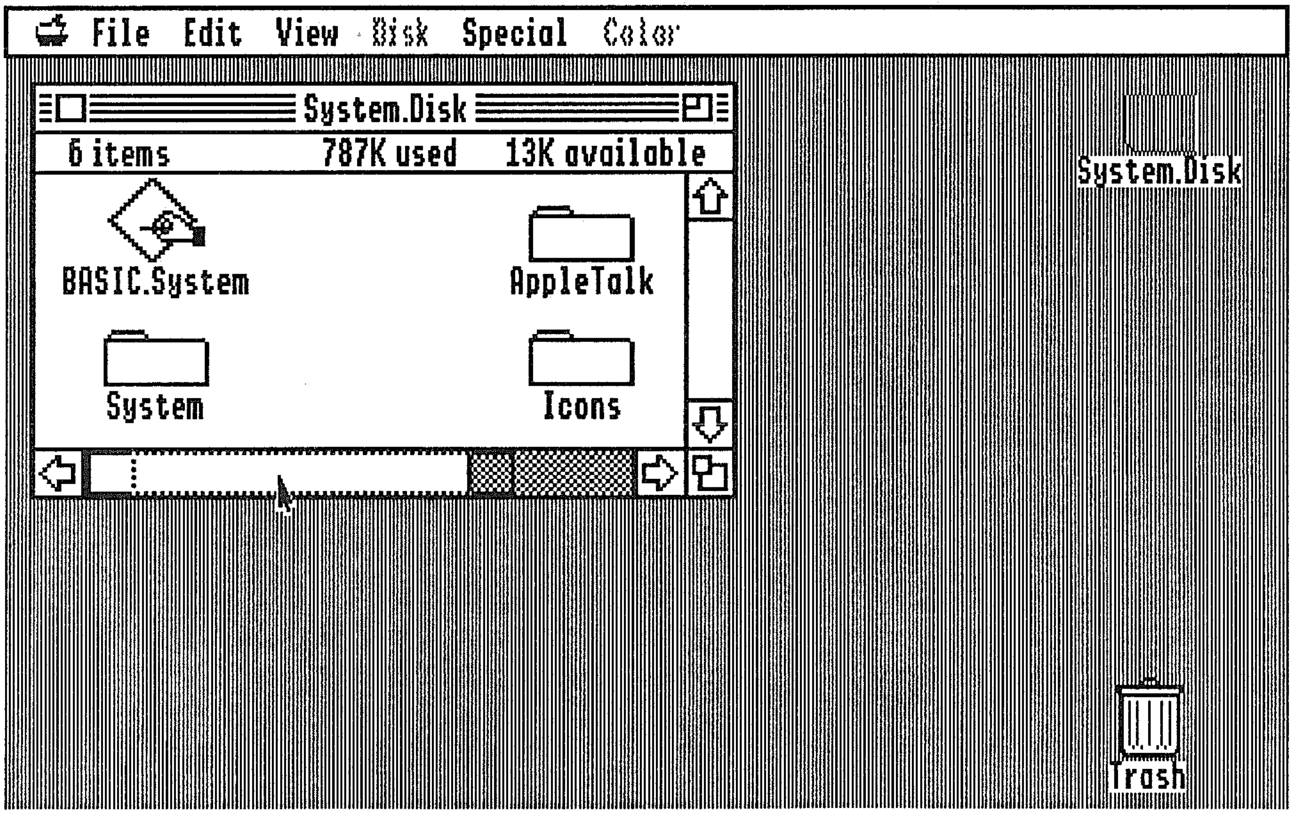


Figure 17. Dragging the scroll bar

Working with the Desktop

Resizing Windows

The hidden portion of the SYSTEM.DISK window becomes visible.

You can also reveal more of SYSTEM.DISK's contents by changing the size of the window. You can change the size of the window by clicking on the zoom box (the small box in the upper right hand corner) or clicking and dragging on the size box (the small box on the lower right hand corner. Try them both.

13. Position the pointer on the zoom box and click to make the SYSTEM.DISK window expand to its full size.

    The window should expand to fill most of the screen. The entire contents are visible at a glance.

    Now return it to its normal size.

14. Click the zoom box again.

    The window should return to its former size and position.

    Now change the window size again, by dragging the size box. Dragging horizontally changes the window width, dragging vertically changes its height, and dragging diagonally changes both. The new dimensions take effect when you release the mouse button.

15. Click and drag the size box. (See Figure 18.)

Working with the Desktop

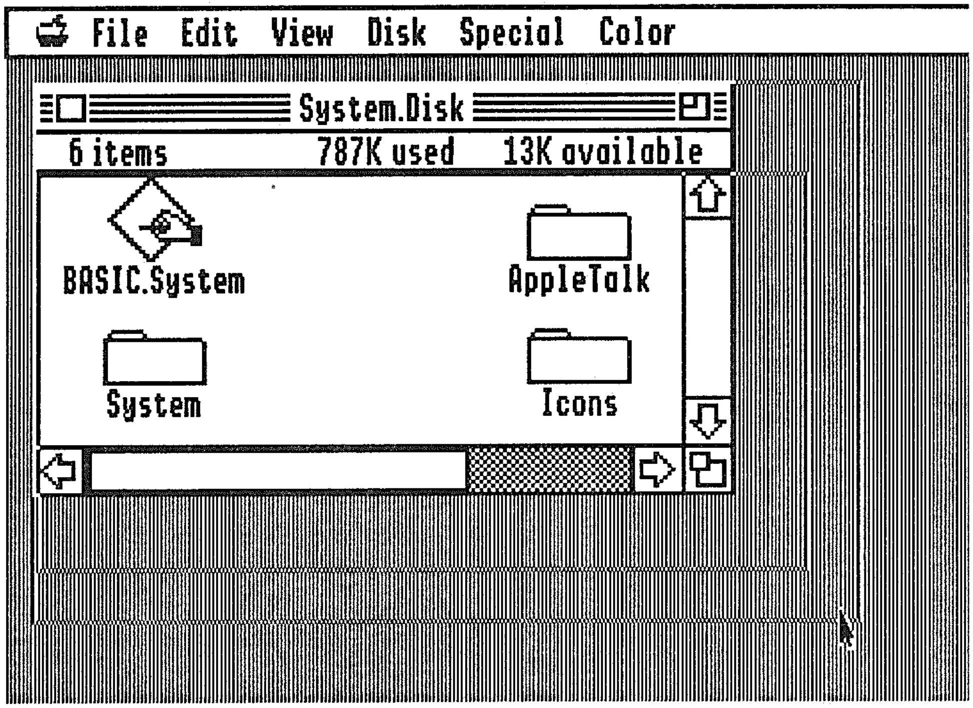


Figure 18. Expanding the window using the size box

You can also shrink the window using the size box.

16. Click on the size box and drag diagonally towards the upper left hand corner of the window until it is smaller than normal

17. Practice expanding and shrinking the window until you feel comfortable with the process.

Moving Windows

Moving a window is much like moving an icon.

18. Position the pointer on the title bar (anywhere **except** the close box or the zoom box)

19. Drag to a new location.

Working with the Desktop

Multiple Windows

You must often move windows when you have more than one window open on the desktop. This makes it easier to see and access the contents of a window.

You can have more than one window open on the desktop at the same time.

20. Open the SYSTEM folder icon.

    Instead of selecting an icon and choosing Open from the File menu, you can open it by simply double-clicking on it.

    The SYSTEM window opens up on top of the SYSTEM.DISK window.

21. Open the DRIVERS folder icon (inside the SYSTEM folder).

    The DRIVERS window opens up on top of the SYSTEM.DISK window. You should now have three windows open on the desktop. Notice how they are stacked on top of each other like sheets of paper. The window on top, DRIVERS, is now the **active** window.

    When you open a new window, usually the previous window is partly covered up. By moving and resizing windows, they can be arranged so that each is visible.

Working with the Desktop

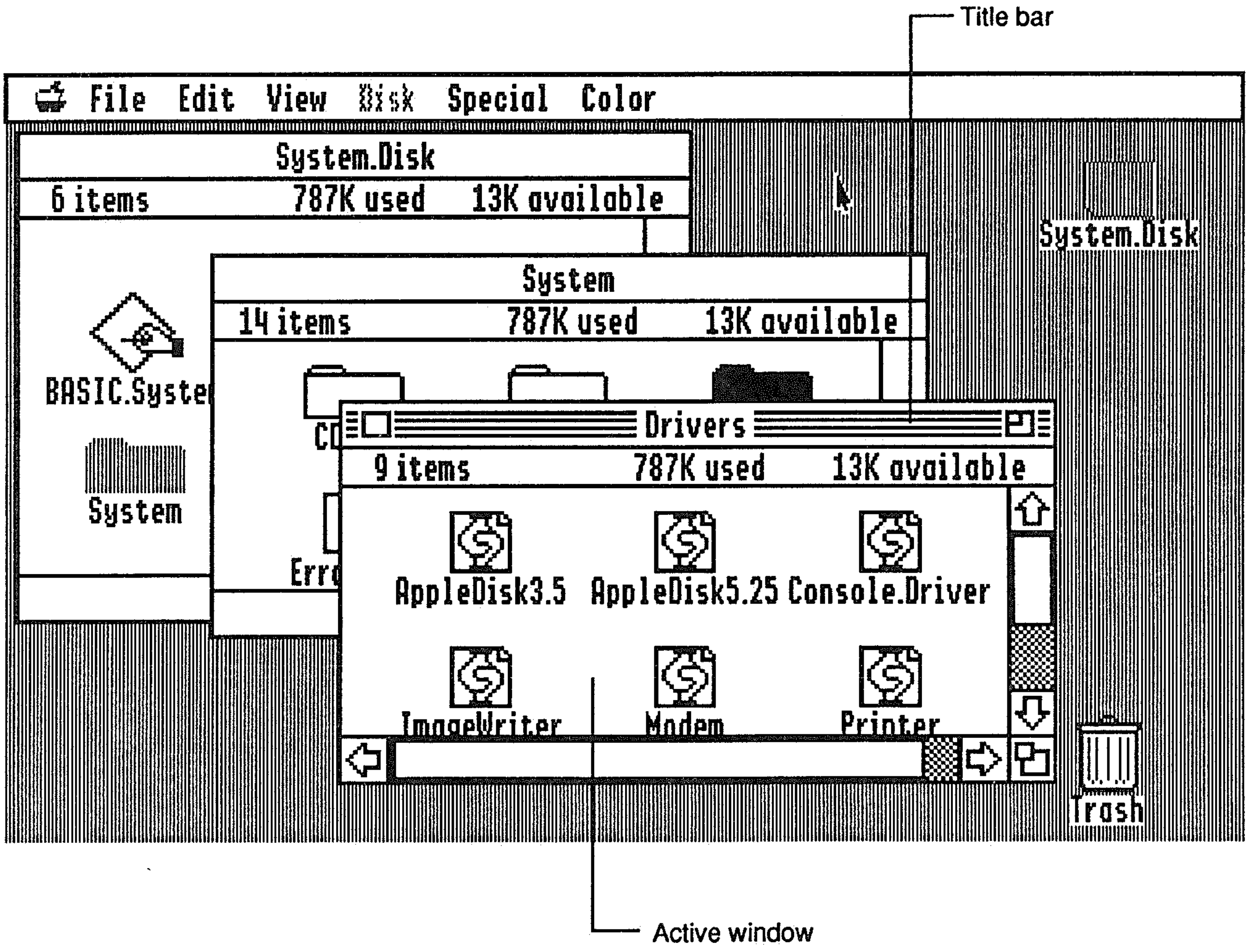


Figure 19. Active window

Making a Window Active

You can only have one window active at a time on the GS/OS desktop. You can tell the active window by the scroll bars and the title bar. (See Figure 19 above.)

You make a window active simply by clicking on it.

23. Activate the SYSTEM.DISK window now.

    The SYSTEM.DISK window is now at the top of the stack. The title bar is highlighted with narrow horizontal lines.

Working with the Desktop

Closing Windows

You close windows by clicking on the close box, the little square in the upper left corner of the title bar. Close up the SYSTEM folder window by doing the following:

24. Activate the SYSTEM window.

25. Click on the close box.

The window telescopes back into the SYSTEM icon.

Launching BASIC System

BASIC.SYSTEM is an application that allows you to program the Apple IIGS in the BASIC language. You do not need to know how to program in BASIC. However, you do need to know how to get from the BASIC.SYSTEM back to the desktop in case you accidentally launch the application. In this brief segment, you will launch and then return from the BASIC System.

26. Locate the BASIC.SYSTEM icon in the SYSTEM.DISK window.

    You may have to scroll through window before it becomes visible.

27. Launch the application by double-clicking it.

Notice that this environment has no icons, windows, or pull-down menus. You communicate with the computer by typing in commands. (This is the kind of interface that GS/OS was designed to replace.)

Return to the desktop by typing in the proper command.

28. Type BYE and press the Return key.

After several seconds, the desktop returns to the screen.

Working with the Desktop

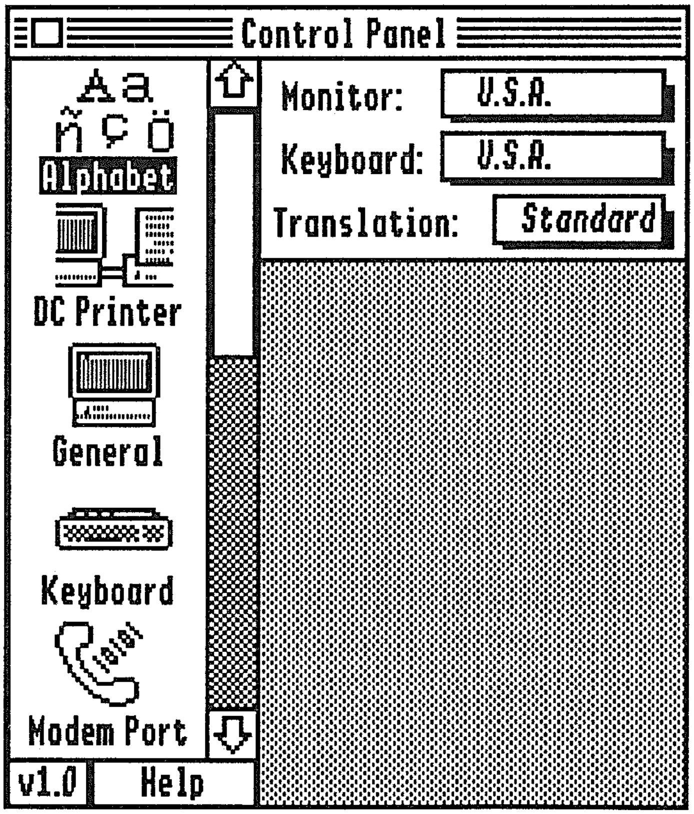
Control Panel

The Finder also provides a graphic interface for the Control Panel. This section will demonstrate how you can change Control Panel settings without leaving the desktop. As you go through this section, compare this interface with the one you used before while in the Control Panel Program

29. Choose the Control Panel from the Apple menu.

    The Apple menu is found under the Apple logo at the left end of the menu bar.

    To display the Apple menu, point to the Apple logo as you would any other menu title and then hold down the mouse button. When you choose Control Panel, you will see the screen shown in Figure 20.



Monitor: U.S.A.
Keyboard: U.S.A.
Translation: Standard

Figure 20. The Control Panel

Working with the Desktop

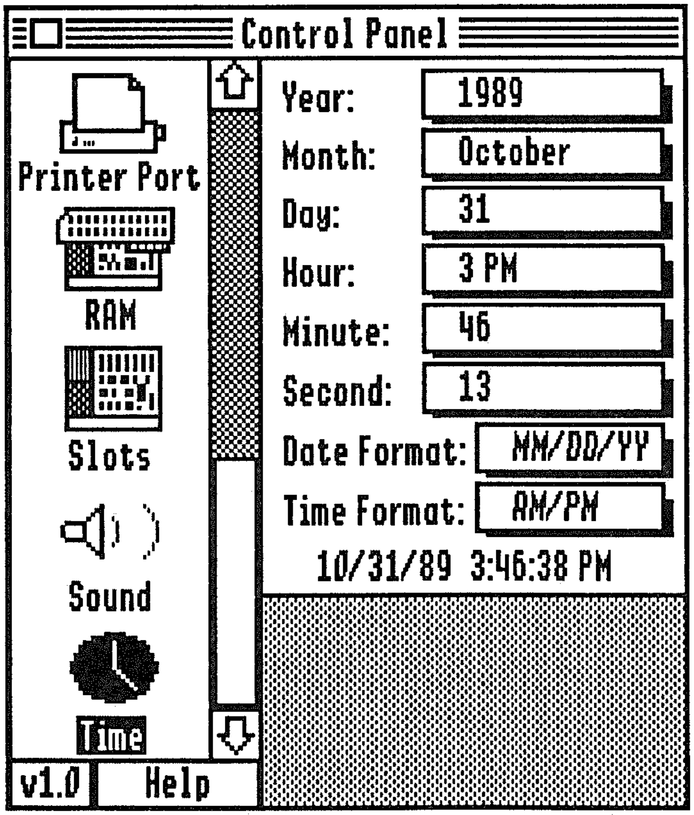
The column on the left has icons representing several categories of options you can set in the Control Panel. The column on the right represents the options in the selected category.

30. Scroll through the column on the left until the Time icon is visible.

    Notice that the Control Panel menu options are represented as icons.

31. Select the Time icon.

    The Time options appear in the column on the right (Figure 21). You should see the same settings you made in the Control Panel section above. Just to get a feel for how this interface works, you will change the year.



Year: 1989
Month: October
Day: 31
Hour: 3 PM
Minute: 46
Second: 13
Date Format: MM/DD/YY
Time Format: AM/PM
10/31/89 3:46:38 PM

Figure 21. The Time options

Working with the Desktop

32. Position the pointer on the box to the right of the word *Year* and hold down the mouse button.

    A list of years appears as shown in Figure 22. This is called a pop-up menu.

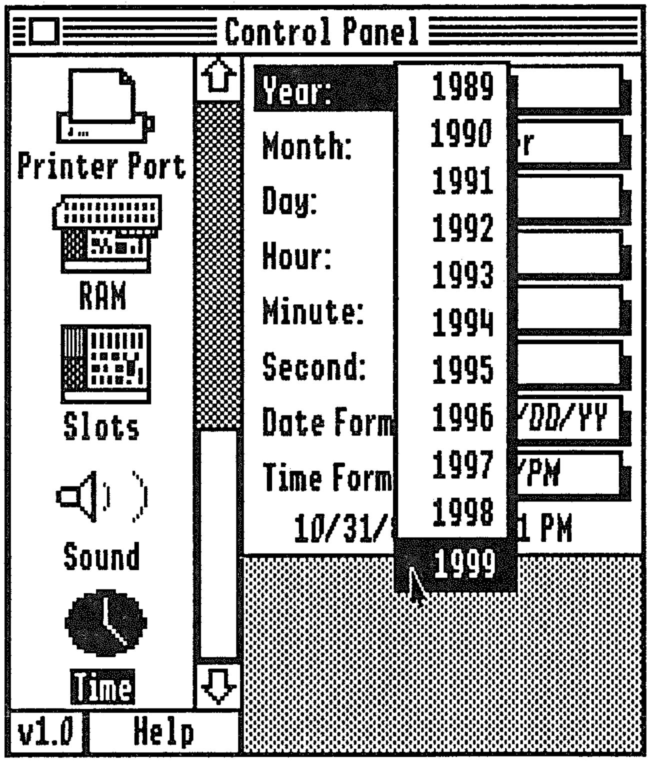


Figure 22. Setting the Year

33. Drag through the list of years until the year 1999 is selected, then release the mouse button.

    When you release the mouse button, the year you selected appears in the box to the right of the word *Year*.

Working with the Desktop

34. Change the setting back to the current year.

    Using the same method, you can change the settings for month, day, hour, minute and so on. Other Control Panel options can be set using similar procedures.

35. Close the Control Panel.

    Choose Close from the File menu or click the close box in the upper left hand corner of the Control Panel window.

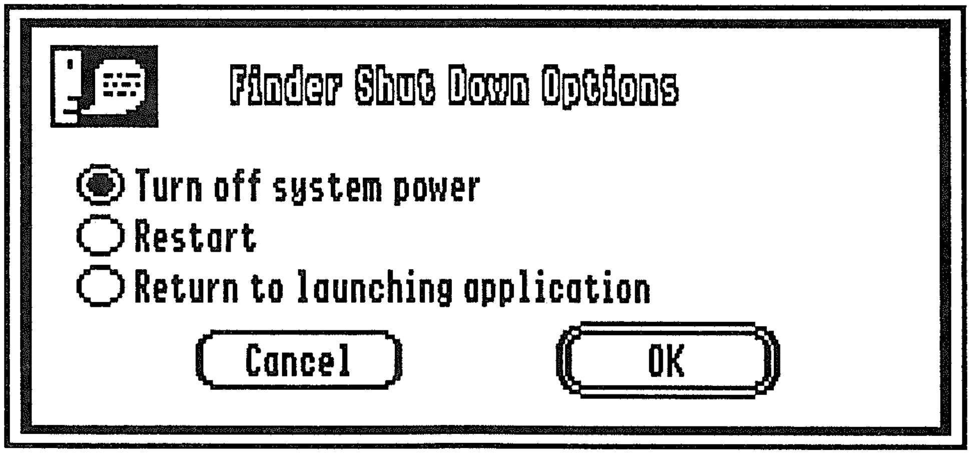
Shut Down

You will finish this section by shutting down the system. By observing the proper shut down sequence, you can help prevent accidental loss of data.

36. Close up all windows.

37. Select Shut Down from the Special menu.

    You will see a dialog box as shown in Figure 23.



Finder Shut Down Options

● Turn off system power
○ Restart
○ Return to launching application

Figure 23. The Shut Down dialog box

Working with the Desktop

Dialog Boxes

The rectangle with the message in it is called a dialog box. A dialog box appears whenever the GS/OS needs additional information. Dialog boxes present choices, represented by buttons which you click on, and sometimes a place for you to type in additional information. This dialog box is asking you if you want to turn off the system power or exercise other options.

38. Select the "Turn off system power" option if it is not already selected.

39. Click OK.

    You'll see a screen telling you it's OK to switch off the power. You can now either switch off the power or click Restart.

40. If you wish to stop for now, switch off the power. Otherwise, click Restart and insert the disk into the disk drive.

Continue with the next section—Exercise: Working With Icons and Windows.

Exercise: Working with Icons and Windows

Directions

The following exercise will check your ability to navigate on the GS/OS desktop. If you have any trouble performing this exercise, please review the previous section.

Arranging the Desktop

Use your ability to scroll, resize, and move windows to rearrange your desktop.

1. Arrange your desktop to look exactly like the one in Figure 24.

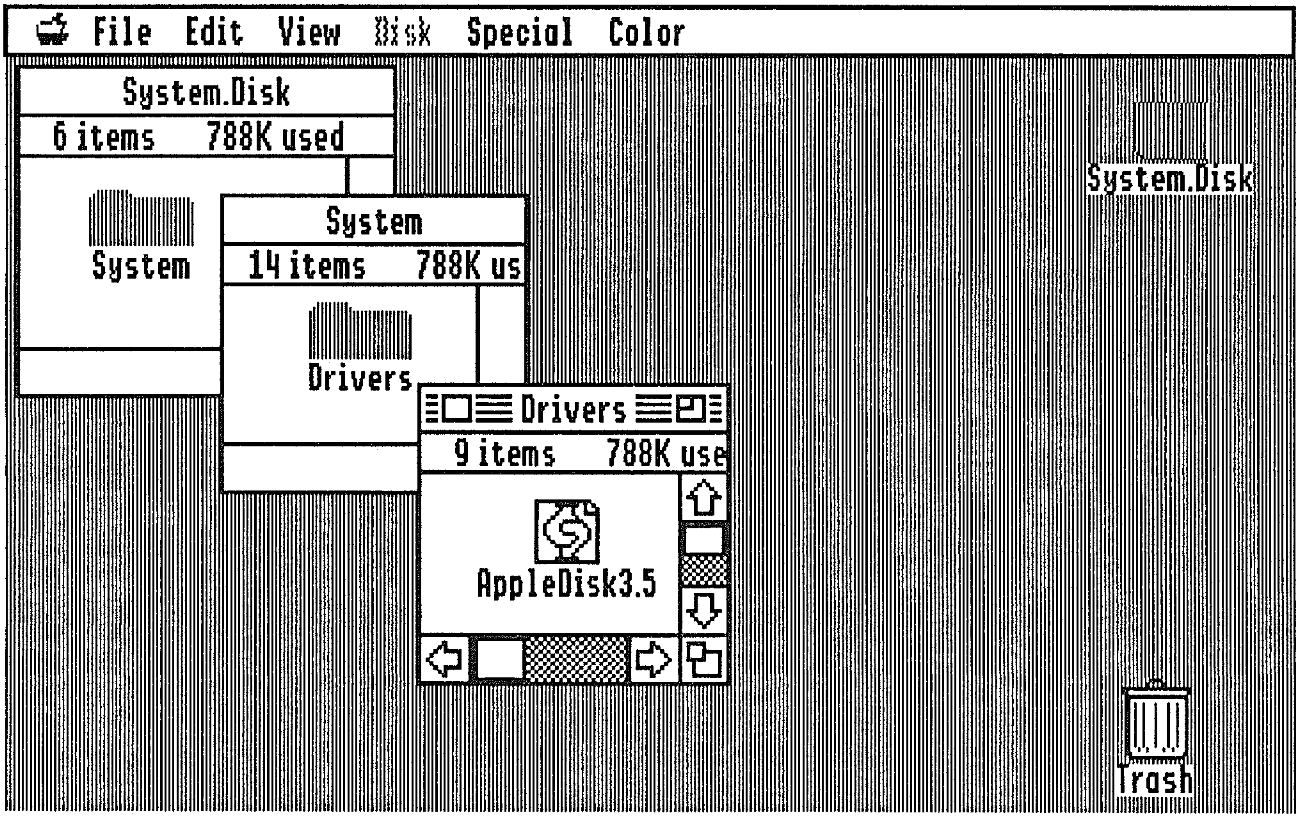


Figure 24. The Apple IIGS Desktop

2. Close all windows.

The desktop should now appear the way it did when you first booted up.

Continue with the next section—Making Backup Disks.

Making Backup Disks

Introduction

In this activity, you will learn how to make copies of disks on the GS/OS desktop. When a disk is damaged or destroyed, the information stored on it is lost . To protect against accidental loss of information, you should make copies of all important software and disk files.

Once you have made backups, you put the originals away for safekeeping. If the backup disk is lost or destroyed, you can always make another copy from the original.

In this section you will make a backup copy of your Apple IIGS System disk. You will learn how to:

- Initialize a blank disk
- Copy the contents of one disk onto another

Materials Needed

For this activity you will need:

- An Apple IIGS system set up and configured as follows:
  - Apple IIGS with minimum 512K of RAM
  - ADB keyboard and mouse
  - Monitor
  - Two Apple 3.5-inch disk drives, with one set as the startup drive*

* *One drive will work for this activity, but will require many disk swaps and will take longer.*

- An *Apple IIGS System Disk*
- A blank, unformatted 3.5-inch disk

Making Backup Disks

Initializing A Disk

As you saw on the Tour Disk, initializing creates tracks and sectors on a disk, physical areas where information will be stored (like the lines and spaces on a parking lot). This is called the disk's **format**. Initializing also creates a directory on the disk— a system for locating information on the disk. This is the disk's **file system**.

In this section you will direct the Apple IIGS to initialize a blank, unformatted disk.

Begin this activity by starting up the Apple IIGS.

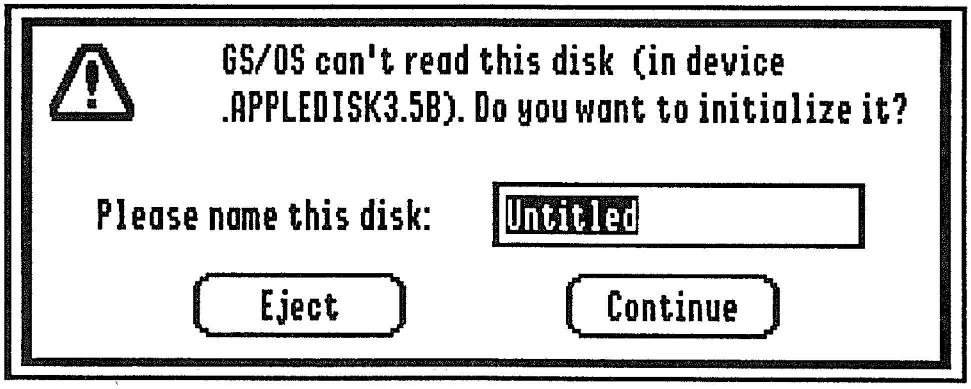
1. Boot up the Apple IIGS from the System disk in the startup drive.
2. Insert the blank 3.5-inch disk into the second drive.

For single drive systems

If you are using only a single 3.5-inch drive for this exercise:

- Select the SYSTEM.DISK icon and choose Eject from the Special menu. Notice that a dimmed disk icon remains on the desktop after the disk has been ejected.
- Insert your blank 3.5-inch disk.

If you've never used this disk before, you'll see a message similar to the one shown in Figure 25.



GS/OS can't read this disk (in device .APPLEDISK3.5B). Do you want to initialize it?

Please name this disk: Untitled

Figure 25. The initialize dialog box

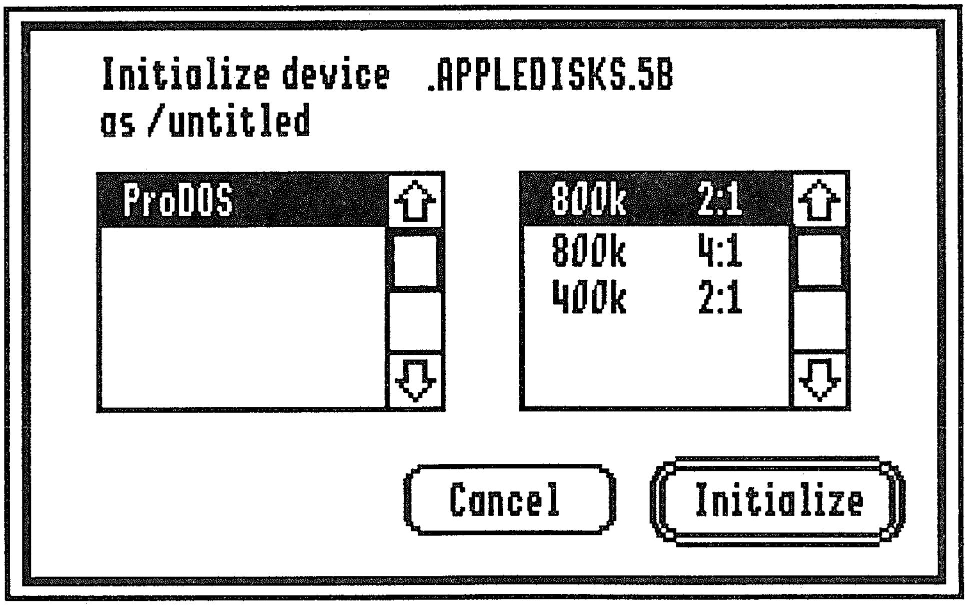
Making Backup Disks

This dialog box is asking you if you want to initialize this disk or eject it.

This dialog box also asks you to type in a name for this disk. The name you choose must be no more than 15 characters and must begin with a letter. The remaining 14 characters may be letters, numbers, or periods.

3. For the purposes of this exercise, name it SYSTEM.BACKUP.
4. Click Continue.

Another dialog box appears. This one asks you to choose a file system and format. (See Figure 26.)



Initialize device .APPLEDISKS.5B
as /untitled

ProDOS

800k 2:1

Figure 26. Choosing a file system and format

Making Backup Disks

File system options are listed in the left-hand window. The type of file system is related to the operating system you want to use: ProDOS, DOS 3.3 and so on. Since GS/OS uses the ProDOS file system, make sure ProDOS is selected.

The Format options are listed in the right-hand window. 800K and 400K refer to disk capacity.; 2:1 and 4:1 refer to different layouts of tracks and sectors on the disk. ProDOS 16 files require 2:1 format. Make sure 800K 2:1 is selected (The only time you should choose 400K 2:1 is if you're using a single-sided 3.5-inch disk).

5. Make sure ProDOS and 800K 2:1 are selected, then click Initialize.

For single drive systems

If you are using only one 3.5-inch drive, you will have to perform several "disk swaps". A dialog box will appear on the screen asking you to eject one disk and insert another. Here's how to do it:

- Press the eject button on the 3.5-inch disk drive and remove the disk.
- Insert the other disk, and press Return.
- Repeat as necessary.

A message will appear on the screen when the initialization has been completed.

Making a Backup Disk

Now that you have an initialized disk, you can make a backup copy of your *Apple IIGS System Disk.* Making a backup copy involves copying the contents of one disk onto another.

To make a copy of the *Apple IIGS System Disk*:

6. Drag the SYSTEM.DISK icon on top of the icon of the disk that will be the backup.
7. Release the mouse button when the backup disk icon is highlighted (See Figure 27.)

Making Backup Disks

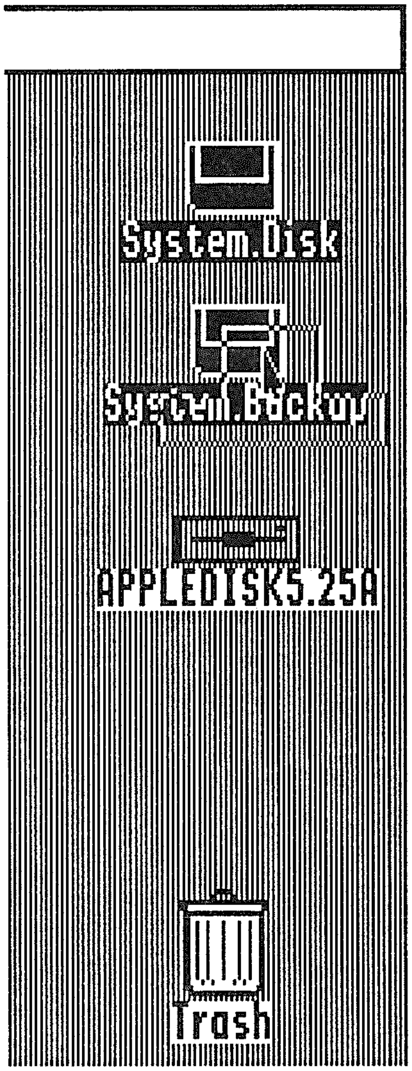


Figure 27. Copying a Disk

8. When a dialog box appears asking you to confirm that you want to replace everything on the newly initialized disk, click OK.

As the copying proceeds, you'll see messages indicating how many blocks are left to copy. If you are using one disk drive, you will be prompted to switch disks periodically, just as you did during initialization.

Making Backup Disks

Booting up from the Backup

You have now created a copy of the System disk. To make sure everything was copied correctly, try booting up the system from your backup disk.

9. Choose Shut Down from the Special menu.

10. Click on Restart, then click OK.

11. Remove the *Apple IIGS System Disk*, if it is in the startup drive, and insert your new backup disk.

    The system should reboot. After several seconds, the desktop will reappear. If the desktop doesn't appear, you need to try the copy procedure over again. If, after your second attempt you still can't get the desktop to appear, you may have a damaged or defective disk. In that case, make another backup with a new blank disk.

12. Put your *Apple IIGS System Disk* away for safe keeping.

Continue with the next section—Creating Documents.

Creating Documents

Introduction

In this section, you will learn how to create and save a document using a typical word processing application. You will learn how to:

- Open an application
- Create and save a document
- Launch the application from the document icon
- Save changes to the document under a different name

Material Needed

For this activity you will need:

- An Apple IIGS system set up and configured as follows:
  - Apple IIGS with minimum 512K of RAM
  - ADB keyboard and mouse
  - Monitor
  - Two Apple 3.5-inch disk drives, with one set as the startup drive*

** One drive will work for this activity, but will require many disk swaps and will take longer.*

- A typical word processing application designed for the Apple IIGS desktop such as:
  - AppleWorks GS
  - Word Perfect for the Apple IIGS
  - DeluxeWrite

Important: *You must get a GS/OS desktop-compatible application in order to complete the rest of this section.*

Creating a Document

This section outlines the general steps used for creating a document. **The procedure required by the application you are using may differ slightly. Consult the application manual or user's guide if you have any trouble with the following procedure.**

Open the word processing application.

1. Insert your word processing application disk.

Creating Documents

Opening the Application

If you are using a one drive system, you will have to eject your backup system disk first.

2. Open the disk icon by double-clicking it.

3. Open the word processing application icon by double-clicking it.

You should see a window much like the one you worked with in *Your Tour of the Apple IIGS* disk. This time, however, there is no pre-typed text in the window. (See Figure 28.)

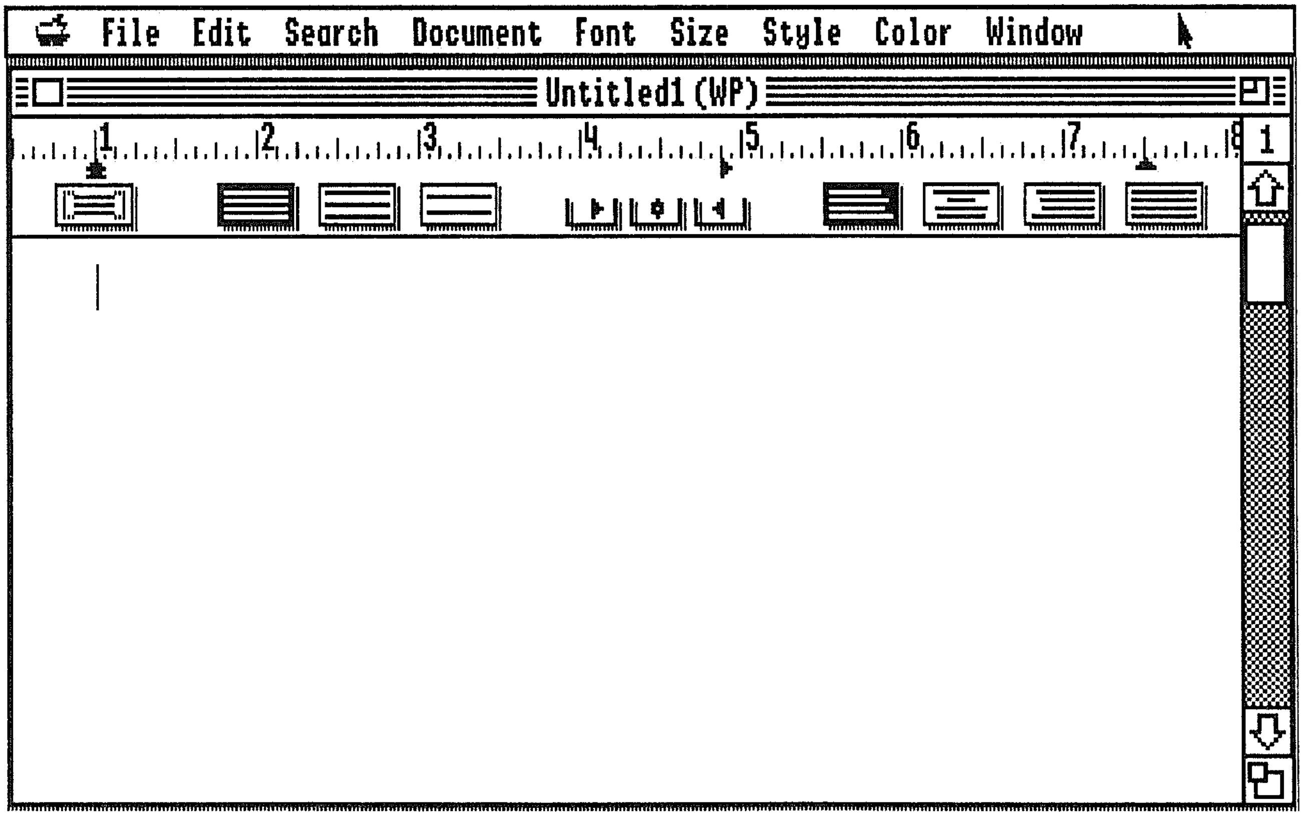


Figure 28. A word processing window

Note: *Instead of a document window, some applications produce only a blank screen with a menu bar. You need to pull down New from the File menu in order to get a document window*

Creating Documents

Entering Text

As you may recall from *Your Tour of the Apple IIGS*, the vertical blinking bar marks the **insertion point**, where text you type will appear.

When your typing reaches the end of the line, the text will **wrap around** automatically to the next line.

If you want to start a new paragraph, press **Return.**

Use the **delete** key to erase any mistakes you might make.

4. Type the following sentence. Use the delete key to erase any errors you make.

   As you type this, the words are placed in the temporary memory known as RAM.

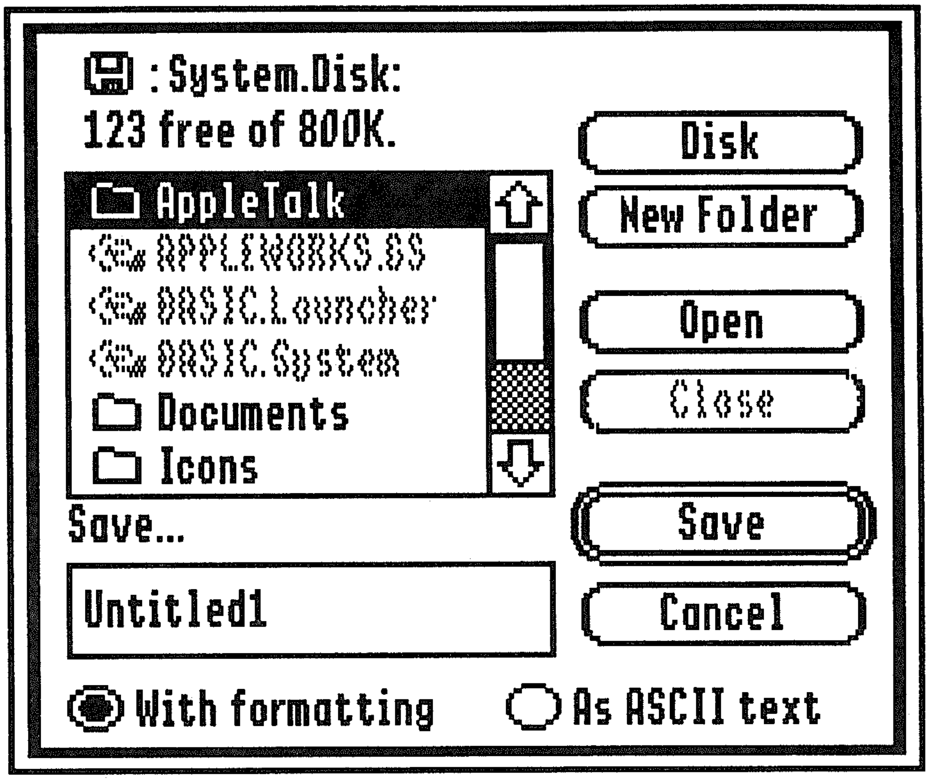
Saving

5. Choose Save from the File menu

   A dialog box appears asking you to name the this document (see Figure 30). Since this is the first document, name it ALPHA.

   Be sure the disk you are saving to is not write-protected.

Creating Documents



:System.Disk:
123 free of 800K.

Save...

Untitled1

● With formatting ○ As ASCII text

Figure 29. A Save dialog box

6. Type ALPHA and click on the Save button (or press Return).

    If you get a message telling you that there is no room on the disk, eject the application disk and insert your startup disk. Click the drive button on the dialog box until the name SYSTEM.DISK appears. Try saving again.

Notice that the window is now titled ALPHA. There should also be a document icon on the desktop called ALPHA. Go back to the desktop and make sure.

7. Choose Quit from the File menu.

You should see a document icon on the desktop entitled ALPHA. You may have to scroll through the window before the document becomes visible.

Creating Documents

New Documents from Old

In this section you will create a new document by opening up an old one, making changes to it, and saving it under a different file name.

Double-clicking on the ALPHA icon will open that document and simultaneously launch the application.

Opening a Document Icon

8. Double-click on ALPHA.

   The window with the text you typed should reappear.

   Now it's time to add another sentence. Before you start typing, however, make sure the insertion point is at the end of the last sentence.

   If it is not:

   - Move the mouse until you see the I-beam.

     As you saw in *Your Tour of the Apple IIGS*, the mouse pointer turns into an I-beam when placed inside a text window in a word processing document.

   - Move the I-beam to end of the last sentence and click the mouse.

   The insertion point reappears at the end of the second sentence.

9. Type the following after the second sentence:

   To place a document in permanent storage, you need to save it onto a disk.

Save As Command

If you were to choose Save from the File menu, the old version of this document would be written over by this new version. Suppose you wanted to save this new version without erasing the old.

10. Choose Save As from the File menu.

    A dialog box appears asking you to name this new document.

11. Type in BETA and click the Save button.

12. Quit the application.

Creating Documents

Back on the desktop, inside the application disk window, there should now be two document icons, ALPHA and BETA, representing two different versions of the same document.

Continue with the next section—Exercise: Working with Disks and Documents.

Exercise: Working with Disks and Documents

Directions

Answer the following questions by circling the correct answer or writing in the correct answer in the space provided:

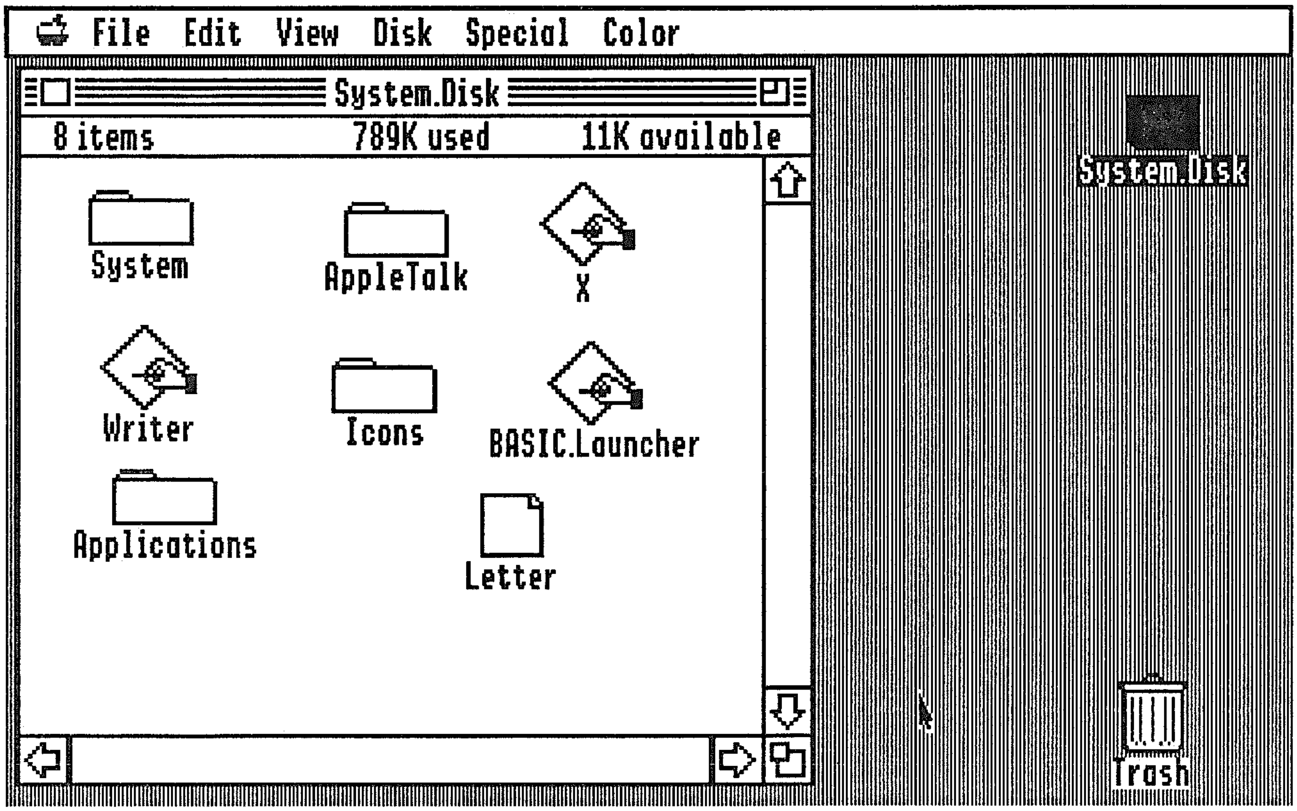


Figure 30.

Refer to Figure 30. You can launch the application "Text Editor" by:

1. a) Clicking on APPLICATIONS

   b) Double-clicking on WRITER

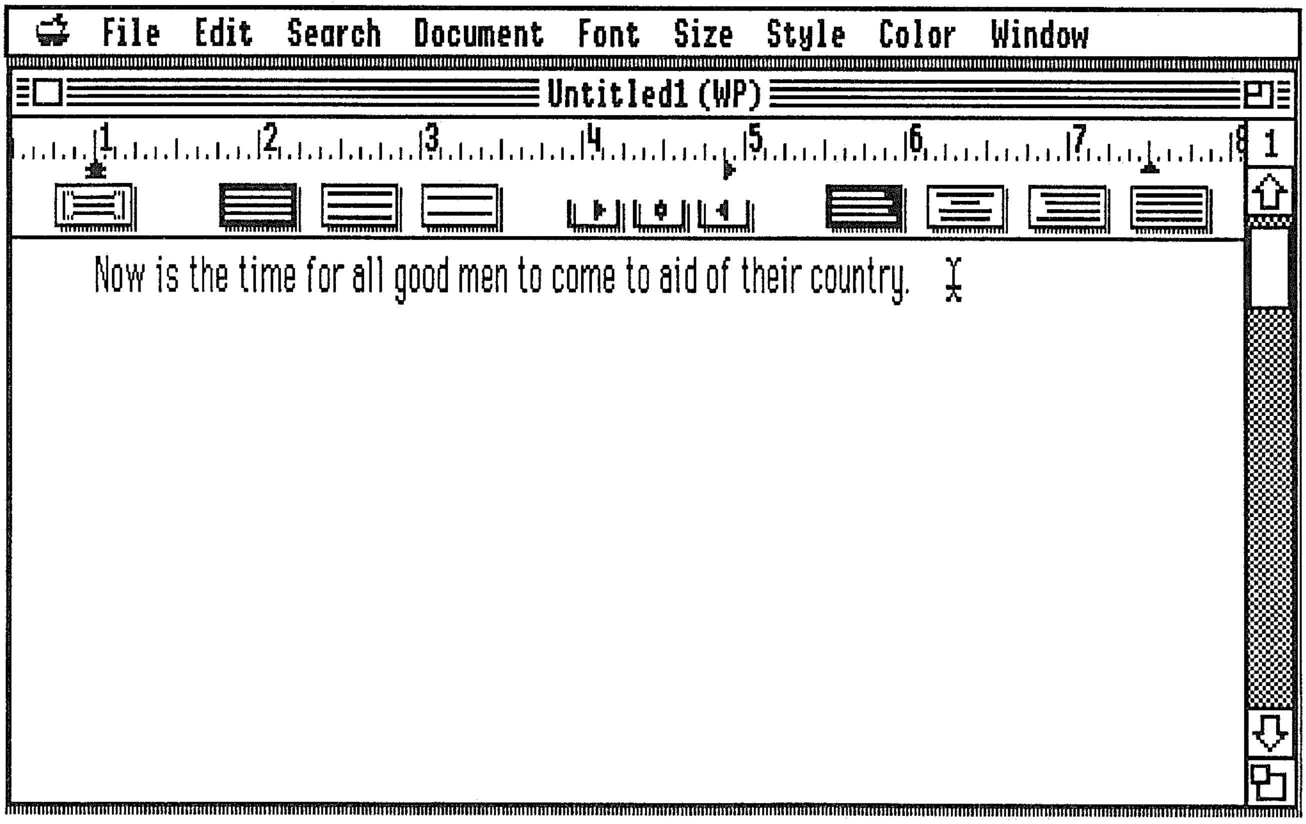
   c) Double-clicking on LETTER

   [✓ d)] Either b or c

Exercise: Working with Disks and Documents

2. Refer to Figure 31. Do you think the text in the window has been saved yet? Why or why not?

NO, It is still Untitled



Now is the time for all good men to come to aid of their country.

Figure 31.

3. Which commands will write the current text onto a disk?

SAVE

4. Which command will let you leave the application?

Quit

Exercise: Working with Disks and Documents

5. Suppose you opened a document which was stored on a disk. You made several changes to it and then used the Save As command to save it—under the same name—onto a second disk. What happens to the original version of the document?

   [✓ a)] Nothing happens to the original version

   b) Written over by the second version

   c) Automatically written onto the second disk along with the second version

6. Circle all correct answers.

   Initializing a disk:

   [✓ a)] prepares a disk for receiving information

   [✓ b)] creates tracks and sectors on the disk where information may be stored

   [✓ c)] creates a file system on the disk for storing and retrieving information

   d) is responsible for dialog boxes

Exercise: Working with Disks and Documents

Compare your answers with those on the following page.

Exercise: Working with Disks and Documents (Answers)

1. d

   You can launch an application by either double-clicking on its icon or by double-clicking on a corresponding document icon.

2. Usually when you see a document window with "UNTITLED" in the title bar, it has not been saved. The only exception to this is when the user chooses to name a document "UNTITLED".

3. Both Save and Save As will tell the computer to write a file onto a disk.

4. Quit (not Close, which only puts away the document).

5. a

   Nothing happens to the original version of the file since the file was saved to another disk.

6. a,b,c

Continue with the next section—Working with Hierarchical Filing Systems.

Working With Hierarchical Filing Systems

Introduction

In this section, you will learn how to file the two documents you created in "Creating Documents" by using the desktop's hierarchical filing system. You will learn how to:

- Create and name a folder
- Place files inside of folders
- Nest folders within folders
- Lock folders

A basic understanding of how documents are filed and accessed on the desktop will help you distinguish software from hardware problems. This will allow you to troubleshoot more efficiently.

Materials Needed

For this activity you will need:

- An Apple IIGS system set up and configured as follows:
  - Apple IIGS with minimum 512K of RAM
  - ADB keyboard and mouse
  - Monitor
  - Two Apple 3.5-inch disk drives*

** One drive will work for this activity, but will require many disk swaps and will take longer.*

- A backup copy of the *Apple IIGS System Disk*

- A 3.5-inch disk containing the two documents you created and the word processing application you used in the section "Creating Documents".

Filing Systems

Filing systems are ways of organizing disk files, such as documents, so that they can be easily located when needed. As was mentioned in the section "Making Backup Disks", the file system, which is created when you initialize a disk, allows the computer to place and locate information on that disk. Each file name corresponds to an "address" (or sector) on the disk (See Figure 32).

Working With Hierarchical Filing Systems

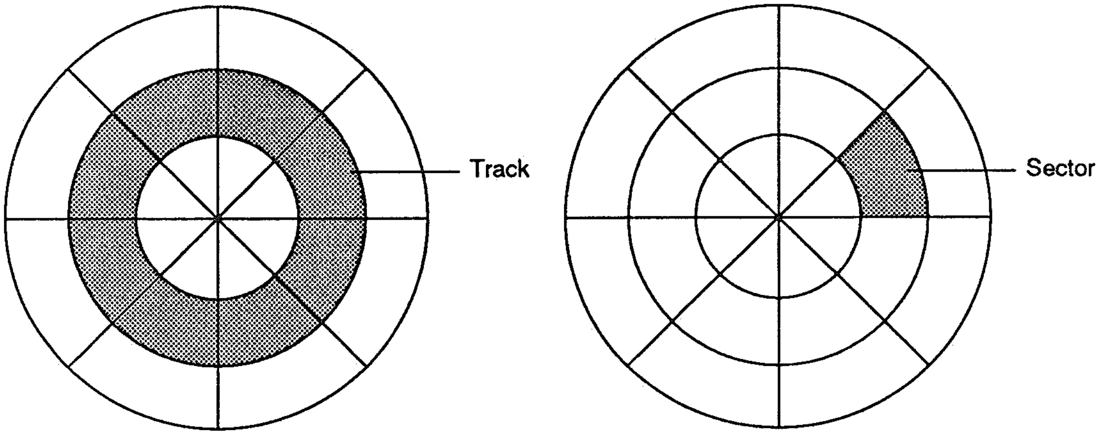


Figure 32. Tracks/Sectors on a formatted disk

Hierarchical Filing Systems

The kind of filing system you work with depends upon the kind of operating system you are using. GS/OS is a hierarchical filing system. It allows you to group similar files together. Hierarchical filing systems make it easier for the computer to locate a particular file.

Working With Hierarchical Filing Systems

The hierarchical file structure is represented on the desktop by folders. You may have already noticed how related items on the System disk are stored within folders.

Folders are the building blocks of the desktop's filing system. You can create a hierarchical filing system by putting files in a folder and then folders within folders — called "nesting".

This filing system prevents the desktop from getting cluttered and makes it easier to locate a document or an application. You will find that a basic understanding of the filing system is necessary when communicating with customers.

Creating a Filing System

Filing systems are created by:

- Creating and naming folders
- Putting related files into folders
- Putting related folders into other folders

1. Boot your Apple IIGS from your backup copy of the System disk, if you have not already done so.
2. Insert your application disk and open up the disk icon. Your two documents, ALPHA and BETA should be visible.
3. Choose New Folder from the File Menu.

Working With Hierarchical Filing Systems

Write-Protect Revisited

If you locked your application disk before inserting it, you will get the following message:

"The volume (disk name) is write protected."

Since creating a new folder means writing onto your disk, you cannot create a new folder as long as your disk is write-protected (locked).

If you get the above message, you must eject the disk, unlock it , and insert it again before proceeding.

A folder called UNTITLED appears in the active window. (If for some reason, there is already a folder called UNTITLED in the window, the new folder will be called UNTITLED.A.) The next step is to name it.

4. Double-click the name of the new folder.

5. Type BUSINESS and press Return.

   If you do not press Return, the folder is not renamed. The old name will reappear as soon as you click somewhere else on the screen.

6. Following the steps just given, create two more folders. Name one PERSONAL and the other, LETTERS.

   Assume that the document called ALPHA is a personal letter and the document called BETA is a business letter.

7. Place ALPHA in the PERSONAL folder.

   Drag the icon on top of the folder. When the folder is highlighted, release the mouse button.

8. Place BETA in the BUSINESS folder.

Pretend that you have many other folders scattered around the desktop. You can reduce the clutter by dropping both the BUSINESS and the PERSONAL folders into the LETTERS folder. This is called nesting.

Working With Hierarchical Filing Systems

9. Place both PERSONAL and BUSINESS inside the LETTERS folder.

There should now be only one folder, LETTERS, visible in the active window.

10. Now open up the folders until you find the BETA document. (See Figure 33.)

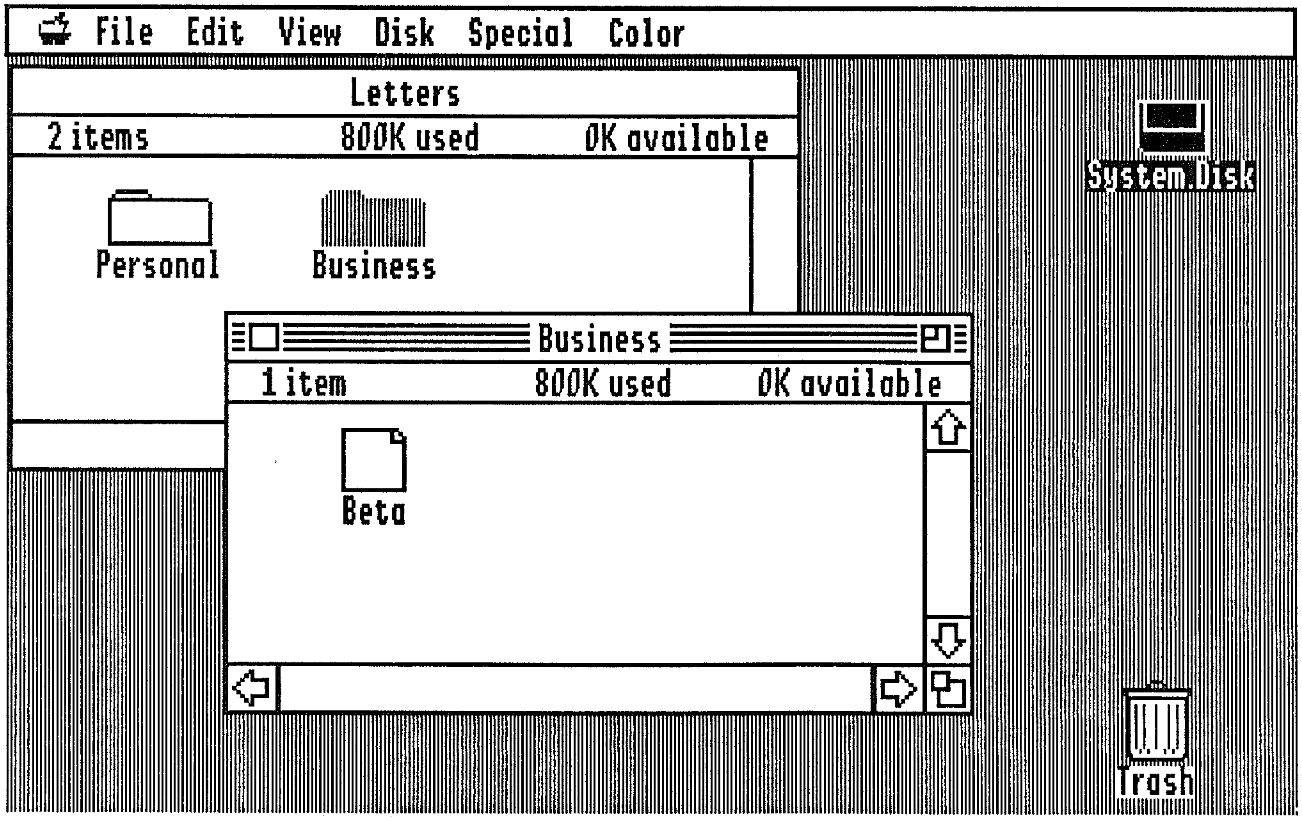


Figure 33. Opening up nested folders

11. Close all the folder windows.

Working With Hierarchical Filing Systems

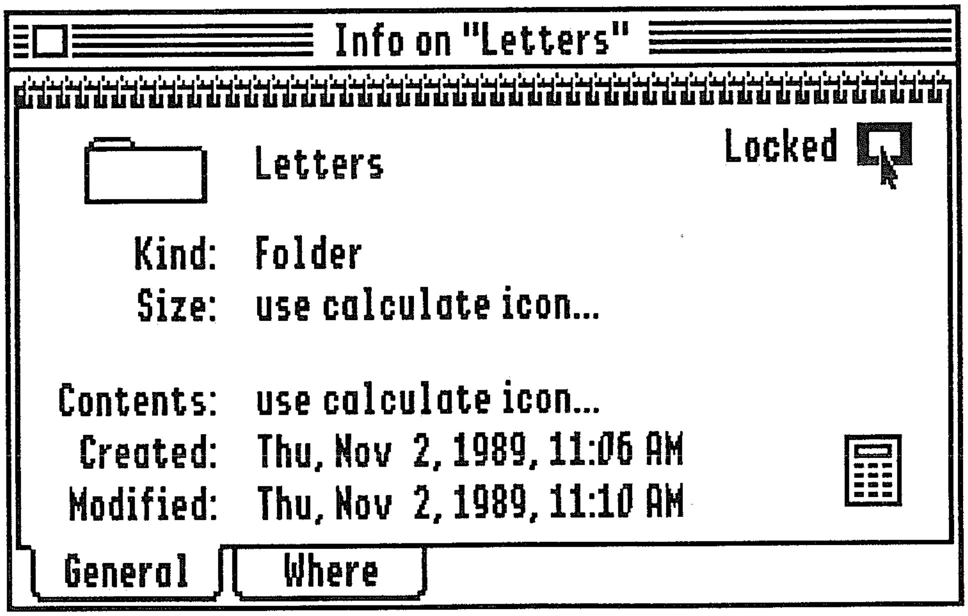
Locking Files and Folders

Instead of locking an entire disk, you can lock individual files and folders. This alternate method of protecting information still allows you to read and write to the disk.

Follow the steps given below to lock your LETTERS folder.

12. Make sure the disk containing the LETTERS folder is open and the window active.
13. Select the LETTERS folder.
14. Choose Icon Info from the Special menu.

    The Icon Info window appears. (See Figure 34.)



Letters

Kind: Folder
Size: use calculate icon...

Contents: use calculate icon...
Created: Thu, Nov 2, 1989, 11:06 AM
Modified: Thu, Nov 2, 1989, 11:10 AM

Figure 34. The Get Info Window

15. Click the Locked check box. An **X** appears.
16. Close the Get Info window.

Working With Hierarchical Filing Systems

Locking a file or folder ensures that you don't accidentally remove, replace, or rename it. Unlocking a file or folder removes this protection. A small lock appears on on the locked folder icon.

Later in the module, when you copy files from folder to folder and from disk to disk, you will see how this protection works.

Continue with the next section—Exercise: Filing Documents.

Exercise: Filing Documents

Directions

Answer the following questions by circling the correct answer or writing in the correct answer in the space provided:

1. You can create a hierarchical filing system on the desktop by:

    a) Creating folders

    b) Putting documents and files in folders

    c) Nesting folders within folders

    [✓ d)] All of the above

2. If you get the following message when you try to create a folder or save onto a disk, what should you do?

    "The volume (disk name) is write protected"

    a) Press the Command, Control, and Reset keys simultaneously

    b) Press the Command, Control, and Escape keys simultaneously

    [✓ c)] Eject the disk, unlock it, and then insert it again before proceeding

    d) Select the disk icon and then choose Get Info from the File menu

Exercise: Filing Documents

3. Refer to Figure 35. If you wanted to change the name of the PERSONAL folder to PRIVATE, what would you do first?

   Select it

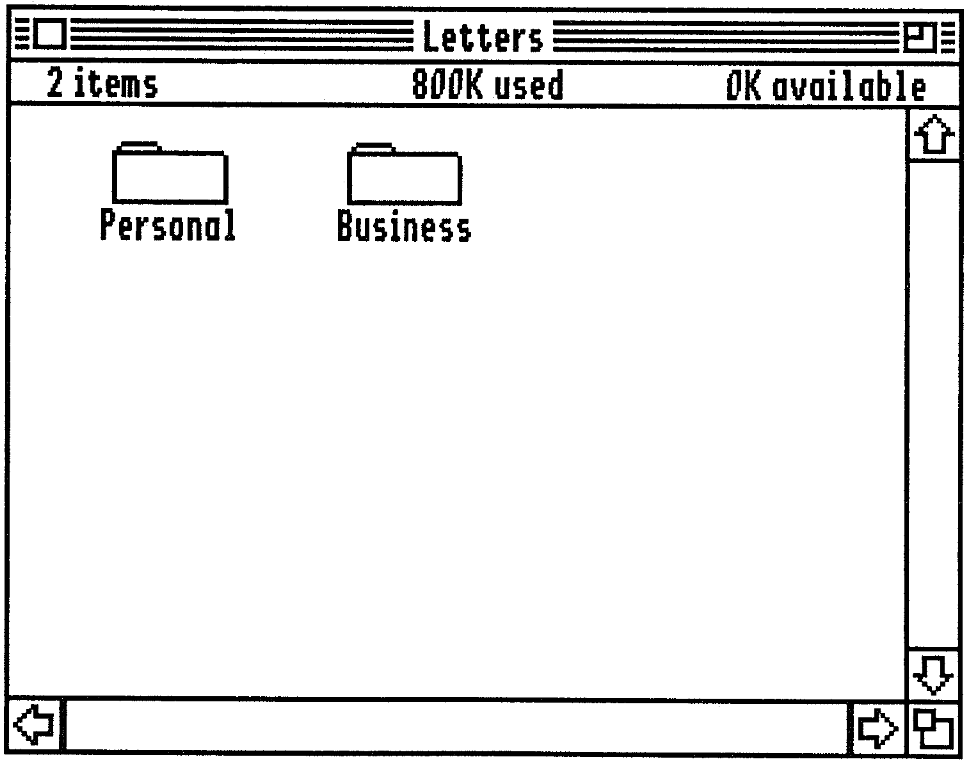


Figure 35.

Exercise: Filing Documents

4. Refer to Figure 36. If you wanted to place the BUSINESS folder inside the PERSONAL folder, you would:

   a) Drag the PERSONAL folder on top of the BUSINESS folder

   [✓ b)] Drag BUSINESS folder on top of the PERSONAL folder

   c) Select BUSINESS folder and rename it PERSONAL

   d) Double-click on BUSINESS folder

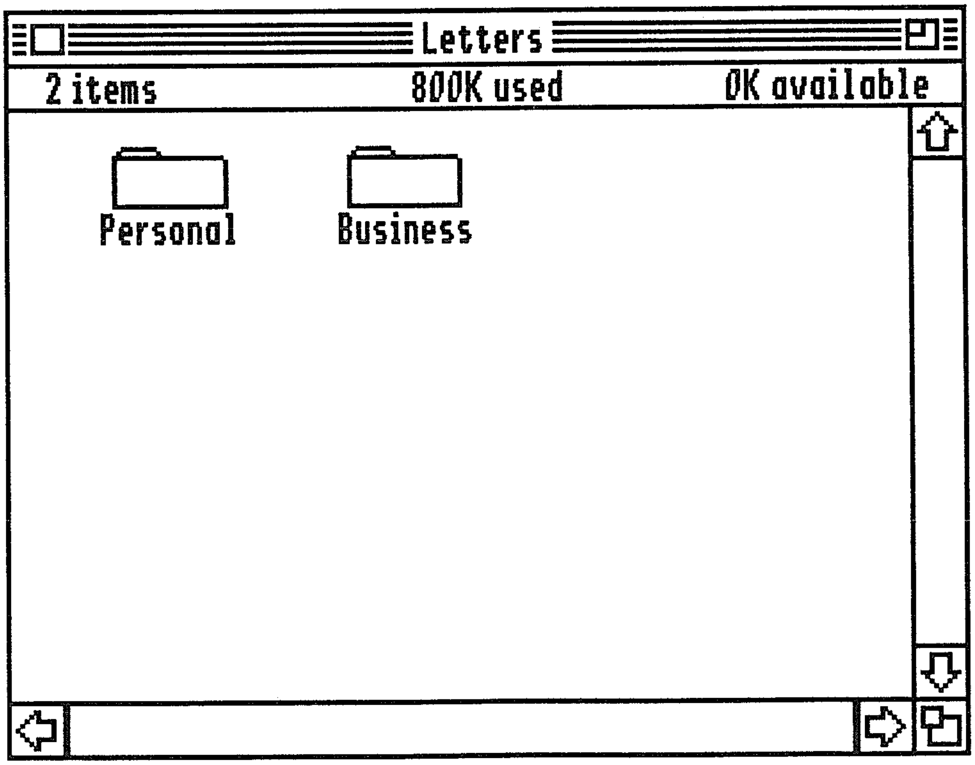


Figure 36.

Exercise: Filing Documents

5. Refer to Figure 37. Which menu item will let you lock the BUSINESS folder?

Icon Info

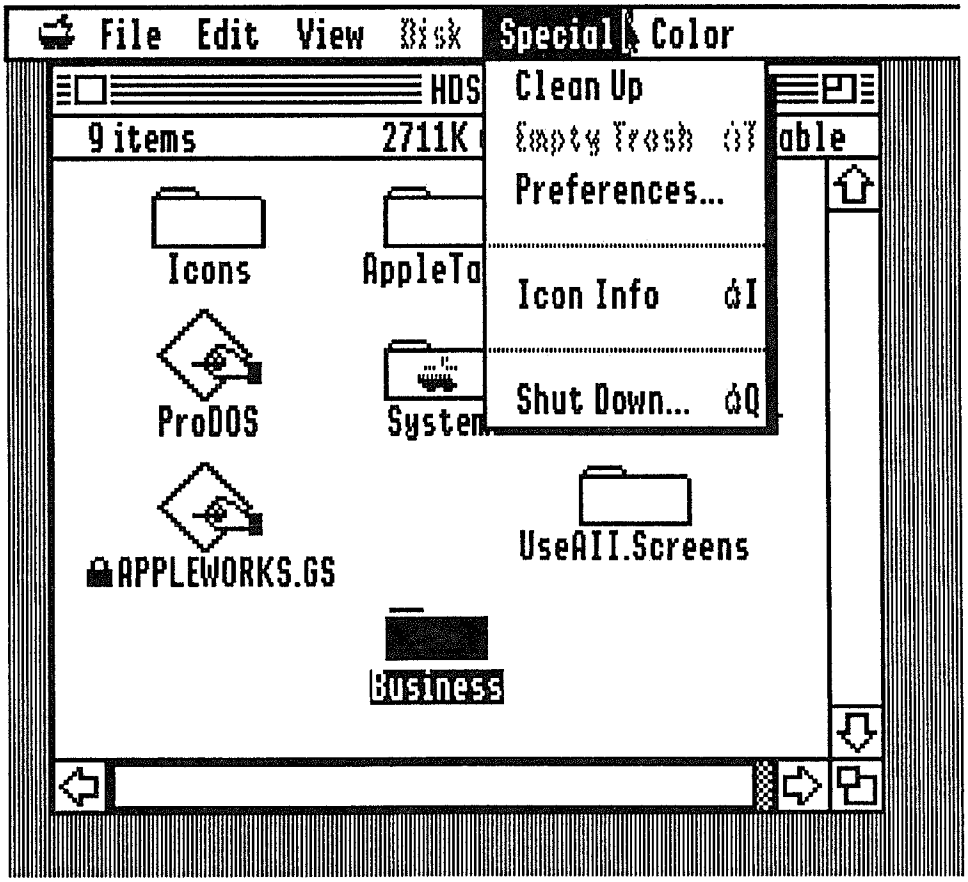


Figure 37.

6. How do you create a new folder?

Choose new folder from the file menu

Compare your answers with those on the following page.

Exercise: Filing Documents (Answers)

1. d

2. c

3. Select it . Then type the new name and press return.

4. b

5. Icon Info

6. Choose New Folder from the File menu

Continue with the next section—Copying Files and Folders on the Desktop.

Copying Files and Folders on the Desktop

Introduction

When you made a backup disk, you copied all of the files from your system disk onto another disk. This process erases the contents of the destination disk (the disk you are copying to) and replaces them with the contents of the source disk (the disk you are copying from).

There are other ways to copy files without erasing information already stored on the destination disk. This section presents different ways files are duplicated, copied, and transferred from disk to disk. In this section you will learn how to:

- Copy folders from one disk onto another
- Copy files from one disk into a folder on another disk
- Copy with options
- Copy the contents of one disk into a folder onto another disk
- Check for bad files and damaged disks

Materials Needed

For this activity you will need:

- An Apple IIGS system set up and configured as follows:
  - Apple IIGS with minimum 512K of RAM
  - ADB keyboard and mouse
  - monitor
  - Two Apple 3.5-inch disk drives, with one set as the startup drive.*
  - One 5.25-inch disk drive (preferably an Apple or UniDisk daisy-chained to the second 3.5 drive if available)

** One 3.5-inch drive will work for this activity.*

- A backup copy of the *Apple IIGS System Disk*

- A 3.5-inch disk containing the two documents you created and the word processing application you used in the section "Creating Documents"

- A blank 5.25-inch disk

Copying Files and Folders on the Desktop

Before You Start

In this section, you will copy files from 3.5-inch disks to 3.5-inch disks and from 3.5 to 5.25-inch disks. Before you can practice copying files from 3.5-inch disks onto 5.25-inch disks, you must first initialize a 5.25-inch disk.

- Make sure your 5.25-inch disk drive is connected.
- Boot up your system and insert the 3.5-inch disk that contains the LETTERS folder you created in the section "Working With Hierarchical Filing Systems".

When the desktop reappears, you should see an icon representing the 5.25-inch disk drive on the desktop. (See Figure 38.)

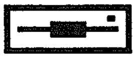
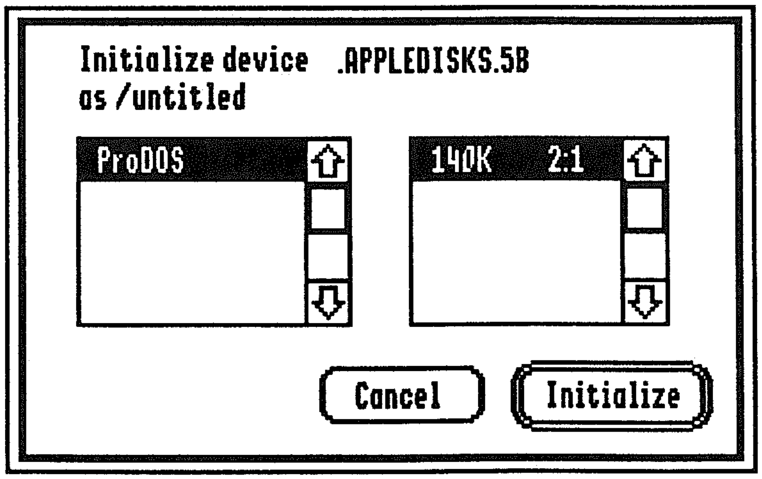


Figure 38. 5.25 disk drive icon

Initializing a 5.25-inch disk

1. Place the 5.25-inch floppy disk into the Apple 5.25 drive. Double-click the 5.25 drive icon.
2. When you see a message asking you to name the disk, type a name, such as FILES, and click Continue.
3. When the File System and Format window appears, make sure that ProDOS and 140K are selected. 5.25-inch floppies can hold 140K. (See Figure 39.)



Initialize device .APPLEDISKS.5B
as /untitled

ProDOS

140K 2:1

Figure 39. The File System and Format Window

Copying Files and Folders on the Desktop

4. Click Initialize.

Initialization proceeds.

Although you may have given the 5.25-inch disk a different name, it will be referred to as FILES in the directions below.

Copying Items From Disk to Disk

Individual files and folders can be copied from disk to disk by dragging their icons. Normally this process will not erase anything on the target disk.

In this section you will copy a folder from your 3.5-inch disk onto your startup disk.

5. Select the LETTERS icon.
6. Place the pointer on LETTERS and drag it onto the startup disk icon.
7. When the disk icon is highlighted, release the mouse button.

   A series of messages will appear on the screen as the copying proceeds, informing you of its status.

8. Open the startup disk icon.

   You should see a LETTERS folder identical to the one displayed in the other 3.5-inch disk window.

Copying Files Onto a 5.25 Disk

Copying from 3.5-inch disks to a 5.25-inch disk works exactly the same way.

9. Open up the 5.25-inch disk icon, if it's not already open.

   You should see a 5.25-inch disk icon below the disk drive icon.

10. Drag the LETTERS folder from the startup disk onto the 5.25 disk (FILES) icon.
11. After the copying procedure is complete, open up FILES and make sure the LETTERS folder is there.

    If it didn't copy, try it again.

Copying Files and Folders on the Desktop

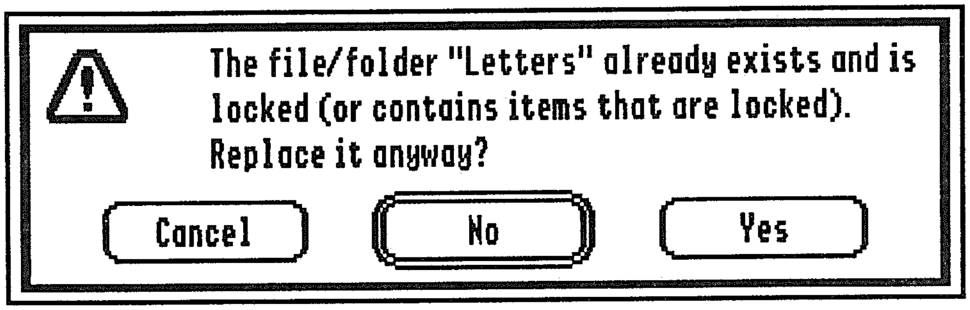
Same Name Files

Sometimes you will accidentally attempt to copy one version of a file or folder onto a disk that contains another version with the same name. Notice how GS/OS handles this situation.

Pretend that the two LETTERS folders contain different information and that you need to preserve both sets of files.

12. Make sure both the startup disk and FILES are open.
13. Drag the LETTERS folder from the FILES window onto the 3.5-inch disk window. Make sure you **do not** drop it into another folder.

    A dialog box appears (See Figure 40), asking you if you want to copy over the existing LETTERS folder.



The file/folder "Letters" already exists and is locked (or contains items that are locked). Replace it anyway?

Figure 40. Replace item dialog box

Since you are assuming that each folder contains different information:

14. Click No or press Return.

    This cancels the copying procedure.

A slightly different dialog box would appear if the folder had not been locked. You'll see that shortly.

Copying Files and Folders on the Desktop

Copying a File Into a Folder

The Finder does not allow two files (or folders) with the same name to be present on the desktop at the same time. This is why you can't copy the second version of the LETTERS folder onto the startup disk without writing over the first. It's easiest to change one of the file names.

You can also copy the file directly into another folder on the disk.

15. Drag the LETTERS folder from the FILES window onto the APPLETALK folder in the startup disk window.

    The copying proceeds without any dialog boxes appearing.

16. Open up the APPLETALK folder and find a copy of the LETTERS folder inside.

There are other reasons for copying files directly into a folder on another disk. It saves time and reduces clutter on the desktop.

It's also important **not** to copy files this way accidentally. Files and folders copied unintentionally into a folder would appear not to have copied at all.

Copying with Options

You can give the Finder instructions on how to handle duplicate files before the copying process begins. You can also copy more than one folder at a time. You'll do both in the next procedure. Pretend you want to copy a group of files from your startup disk onto your FILES disk.

17. Select LETTERS.

18. Hold down the Shift key and select APPLETALK.

    Holding down the Shift key allows you to select another item without deselecting the first. Both LETTERS and APPLETALK should be selected.

19. Hold down the Option key and drag both folders onto the FILES window.

    Make sure you are dragging both simultaneously.

    Holding down the Option key causes the File Copy Alternatives dialog box to appear on the screen. Assume you don't want to copy over duplicate folders.

20. Click on "Don't replace any duplicate items".

    APPLETALK is copied onto the FILES disk. The LETTERS. folder is not.

Copying Files and Folders on the Desktop

Copying 5.25 to 3.5

When you made a backup copy of the *Apple IIGS System Disk*, you dragged one disk icon onto another. This replaced the entire contents of the destination disk with that of the source disk.

When you drag a 5.25-inch disk icon onto a 3.5-inch disk icon, something else happens. The contents of the source disk do not replace the contents of the destination disk. Instead, they are copied into a folder on the target disk.

21. Close up the windows on the desktop.

22. Drag the 5.25-inch disk icon onto the startup disk icon

    A dialog box appears asking you to confirm that you want to place the contents of the source disk in a folder on a destination disk.

23. Click OK (or Press Return).

24. Open up your startup disk .

A folder containing the contents of the 5.25-inch disk should be visible in the startup disk window.

You cannot copy a 3.5-inch diskette to a 5.25-inch disk. 3.5-inch diskettes store more data than a 5.25-inch disk can store.

Using the Trash

The Trash is where you discard unwanted files and folders. The icon represents a special place that holds unwanted files until you decide to delete them or until you turn off the computer. A file may be retrieved from the Trash any time before you turn off the computer.

It's time to clean up the startup disk. Make sure the startup disk window is active.

25. Select the LETTERS folder in the startup disk window and drag it onto the Trash icon.

    Since this folder is locked, a dialog box appears, asking if you really want to discard this folder.

26. Click Yes.

Copying Files and Folders on the Desktop

27. Open up the Trash icon by double-clicking on it.

    Notice the LETTERS folder inside. If you wanted to, you could drag the folder back onto the desktop.

28. Close the Trash window and choose Empty Trash from the Special menu.

29. Open up the APPLETALK folder and select the copy of the LETTERS folder.

30. Drag the copy of LETTERS folder into the Trash.

    This time, since the item wasn't locked, no dialog box appears.

Verifying volumes

Occasionally you will encounter customers who are having problems reading from or writing to a disk. This is often due to physical damage to the disk. You can find out whether or not a disk has been damaged by using the Verify command from the Disk menu. Try it now:

31. Select your application disk (or any disk you wish to check).

32. Choose Verify from the Disk menu.

    You'll see a message indicating that the volume is being verified. Then you'll either get a dialog box telling you the volume is OK or one telling you that the volume (disk) has bad blocks (areas) on it.

33. If there are no bad blocks, click OK to close the dialog box.

    If there are bad blocks, click OK to see a list of bad blocks.

34. If your disk has bad blocks, copy any files you can onto a good disk. Then discard the bad disk.

Validating Files

Sometimes even though a disk is good, certain files on it may be bad. If you can't open a file or if random text appear in the middle of a file, you may have a bad file. You can use the Validate command to check for other bad files on the disk.

35. Select your Files disk (or any other disk icon on the desktop). If you want to check only the files in a certain folder, select that folder.

36. Choose Validate from the File menu.

Copying Files and Folders on the Desktop

You'll see a message indicating that the files in the disk or folder are being verified. Then you'll either get a dialog box telling you the files are OK or one telling you that some are bad.

37. If there are no bad files, click the OK to close the dialog box.

    If there are bad files, click OK to see them listed, or Cancel to put away the dialog box.

38. Once identified, remove the bad files by dragging them into the trash.

By presenting different methods, this section has attempted to alert you to potential problems involved in copying files from disk to disk.

Continue with the next section—Exercise: Copying Files.

Exercise: Copying Files

Directions

Answer the following questions by circling the correct answer or writing in the correct answer in the space provided.

1. Describe the basic procedure for copying files from one disk onto another.

2. Circle each statement below which is true.

   [✓ a)] Files on a write-protected (locked) disk cannot be dragged into the Trash.

   b) Files in a write-protected folder may not be dragged into the Trash.

   c) Files in a write-protected disk may be dragged into the Trash *only* after you click OK in a dialog box.

   [✓ d)] Files in a write-protected folder may not be dragged into the Trash until after you tell GS/OS to do so by clicking yes in a dialog box.

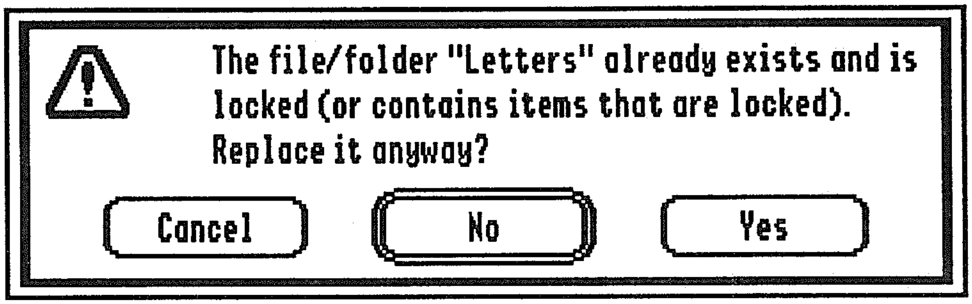
3. To lock a folder, you must first:

   a) Attempt to delete it and get a dialog box.

   b) Eject the disk the folder is stored on.

   [✓ c)] Select it and choose Icon Info from the Special menu.

Exercise: Copying Files



The file/folder "Letters" already exists and is locked (or contains items that are locked). Replace it anyway?

Figure 41.

4. You have attempted to copy a folder onto your FILES disk and you encounter the message shown in Figure 41. There are important items in the original folder you must save. Yet you must copy the new folder onto your FILES disk.

   What's the best way to do that?

   a) Copy the new folder into the old folder on the FILES disk.

   [✓ b)] Change one of the folder names.

   c) Click "Don't replace this item"

5. Copying with Options allows you to give the Finder instructions on how to handle duplicate items. To copy with options, what should you do?

Exercise: Copying Files

6. Complete this sentence:

   When you drag one disk icon on top of another:

   a) the contents of the source disk is always put into a folder on the destination disk

   b) the contents of the destination disk are replaced with the contents of the source disk

   c) duplicate items will not copy

   [✓ d)] what happens next depends upon whether or not the disks are the same size

Exercise: Copying Files

7. Refer to Figure 42. To open "AppleDisk5.25A", what must you do?

   a) Install the corresponding driver

   b) Open the disk drive icon by double-clicking it

   c) Open the 3.5-inch disk by double-clicking it

   d) Restart the system by pressing Command-Control-Reset

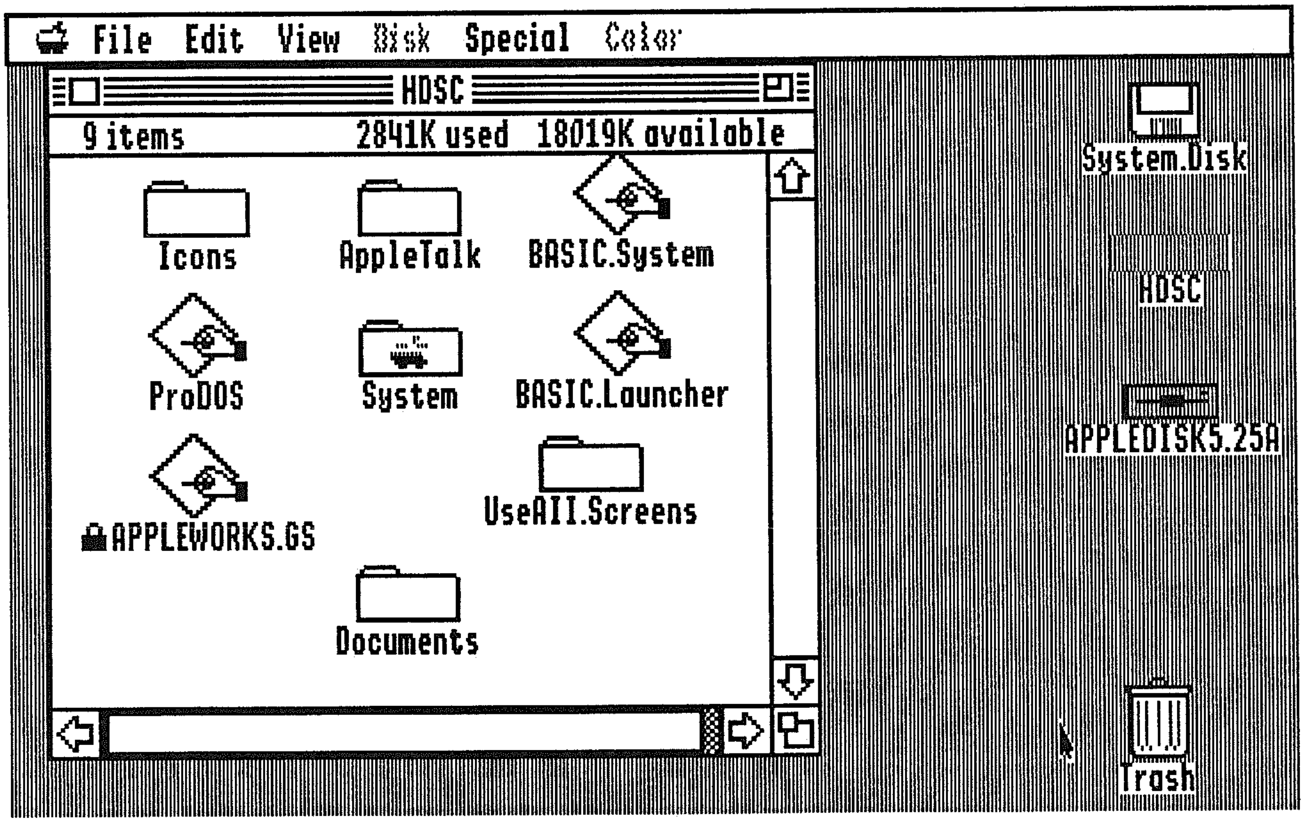


Figure 42. The Apple IIGS desktop

Exercise: Copying Files

8. If you have trouble reading from or writing on to a disk, the disk may be damaged. You can check this by:

   a) Opening the disk and looking for files with random text (garbage)

   b) Removing the disk from the drive and unlocking it

   [✓ c)] Selecting the disk and then choosing Verify from the Disk menu

   d) Selecting a folder in the disk and choosing Validate from the File menu

Compare your answers with those on the following page.

Exercise: Copying Files

1. The basic procedure for copying files from one disk onto another is to select and drag the file icons onto the target disk icon.

2. a, d

3 c

   Select it first, then choose Icon Info from the Special menu.

4. b

   Changing one of the folder names is easiest and simplest thing to do. Although you can copy the new folder into another folder on the disk, this will probably create confusion later on when you are trying to remember which folder contains what.

5. Press down the Option key while dragging the icon from the source disk to the target disk.

6. d

7. b

8. c

Continue with the next section—Exploring the System Disk.

Exploring the System Disk

Introduction

In the preceding sections, you learned to create a startup disk by copying all of the files on your system disk onto a blank, formatted disk. In this section, you will take a closer look at the files contained in the system disk. You will learn to identify the major system software files and their functions. You will learn how these files work together when the Apple IIGS is booting up. This information is critical for isolating software problems.

Materials Needed

For this activity you will need:

- An Apple IIGS system set up and configured as follows:
  - Apple IIGS with minimum 512K of RAM
  - ADB keyboard and mouse
  - Monitor
  - 3.5-inch disk drive, set as the startup drive
- A backup copy of the *Apple IIGS System Disk*

Examining the System Disk

Instead of going straight to the System folder, we will first look at the other items found on the System disk

1. Boot the system from the *Apple IIGS System Disk.*

The GS/OS desktop should appear on your screen. As was mentioned in the last section, an application, the Finder, creates the desktop with the help of managers and routines in the Apple IIGS Toolbox. Shortly you will see where the Finder and some of the tools are located.

2. Open the SYSTEM.DISK icon. (By double-clicking on it or selecting it and then choosing Open from the File menu.)

   A window opens, displaying the contents of the System Disk (see Figure 43).

Exploring the System Disk

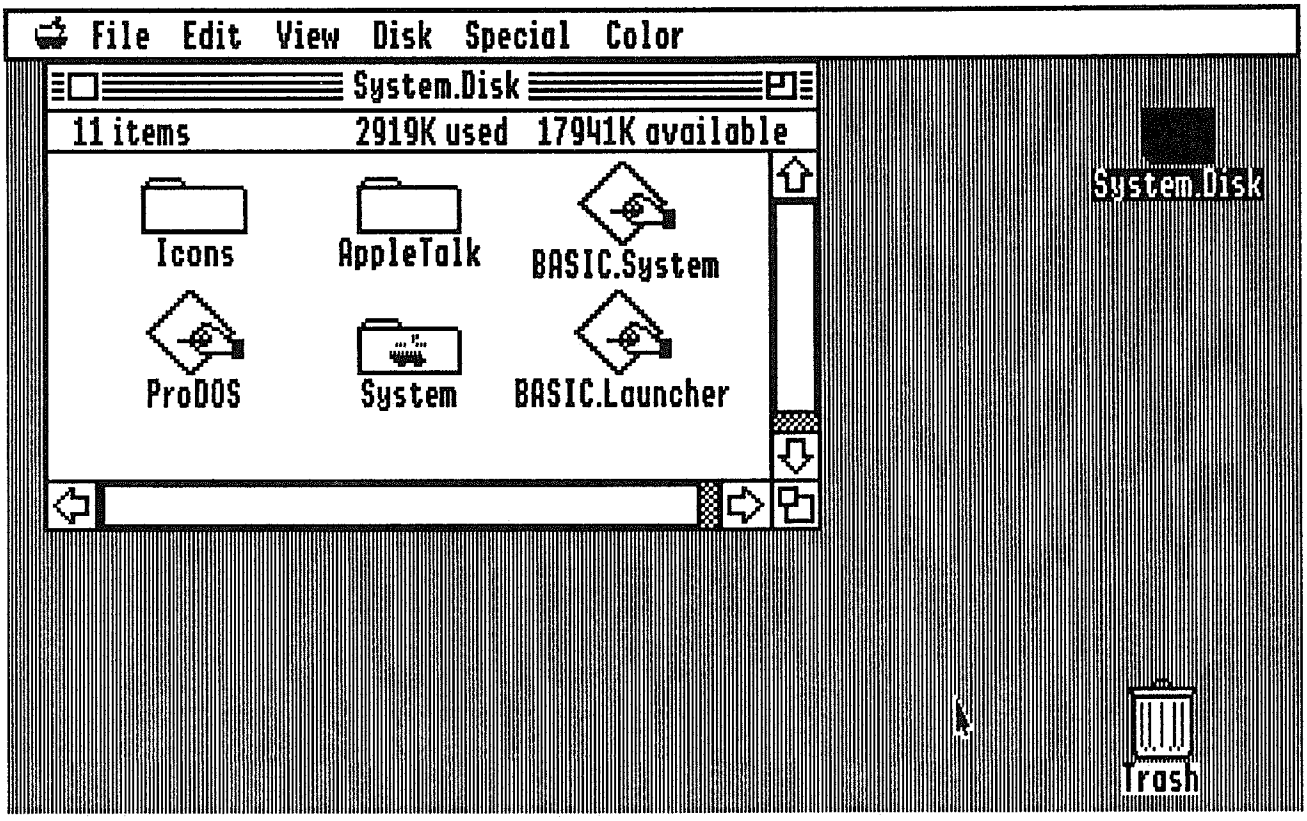


Figure 43. System Disk window

3. Expand the System Disk window if you do not see all of the icons shown in Figure 43.

   (Click-and-drag the little square in the lower right corner of the window.)

- For each icon, read the corresponding description below.

Although this file is called ProDOS, it is **not** the same as the Professional Disk Operating System described in the previous sections. It is actually a very small file designed to initiate the start-up sequence. It is the first file that is loaded into RAM when you start the system.

Exploring the System Disk

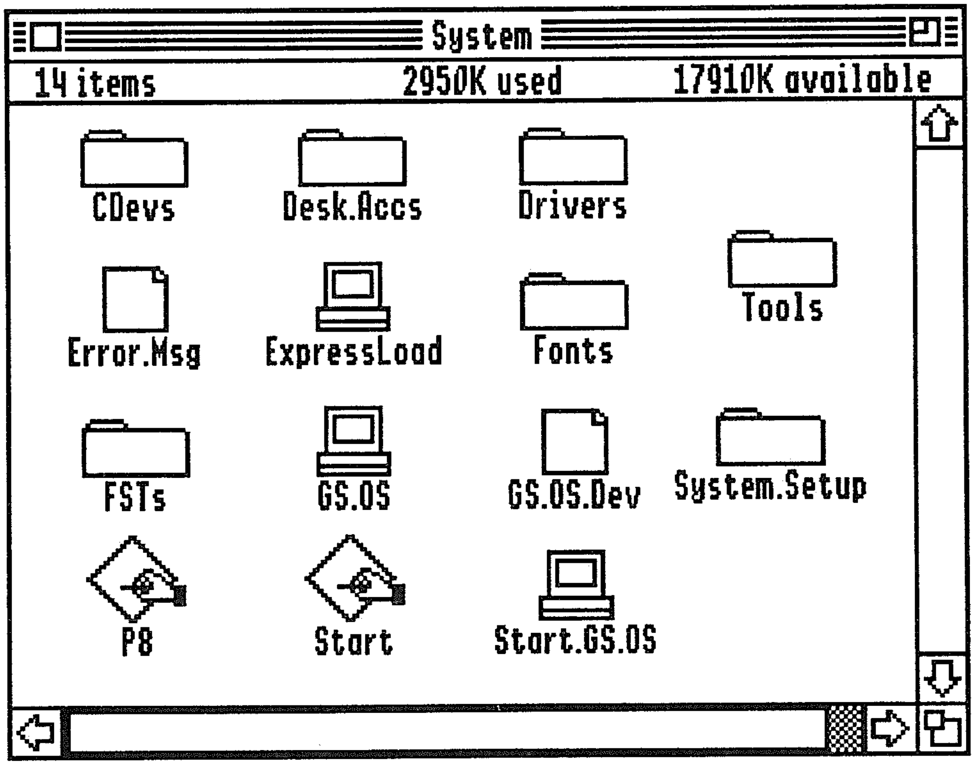
BASIC.System	This file allows access to the BASIC programming environment which is built into the ROM of the Apple IIGS. You got a glimpse of this environment in the "Working With the Desktop" section earlier in this module.
BASIC.Launcher	BASIC LAUNCHER is the set of instructions that opens the BASIC system when you double-click on the BASIC.SYSTEM icon.
Icons	The code that creates the desktop icons is kept here.
AppleTalk	This folder is simply a place holder. If AppleTalk is installed later, those files will be put into the AppleTalk folder. You will learn about AppleTalk in another module.
System	This folder contains most of the files necessary to start and run the system.

Inside the System Folder

The System folder (See Figure 44), stores files and applications that the Apple IIGS uses to boot and run. This folder must be on all startup disks.

1. Open up the SYSTEM icon by double clicking on it.
2. Enlarge the window so that all of the icons are visible.
3. For each icon on the screen, read each of the following descriptions:

Exploring the System Disk



System

14 items 2950K used 17910K available

Figure 44. The System folder

Start.GS.OS

Once loaded, this system application launches GS/OS.

GS.OS

The Apple IIgs Operating System.

Error.Msg

This, together with GS.OS and GS.OS.DEV form the core of the operating system

Exploring the System Disk

GS.OS.Dev

This, together with GS.OS and ERROR.MSG form the core of the operating system.

Start

START is the first application the system looks for after it has booted up GS/OS. START contains the Finder, the application which creates and runs the desktop. If you wanted some other application to appear on the screen each time you started up the computer, you would put that application in the system folder and name it START.

We don't suggest that you try this. This is just to explain why Finder is named START instead of FINDER.

System.Setup

This folder contains resources, managers and other routines for setting up and managing the Apple IIGS toolbox

Tools

This folder contains many of the routines or tools mentioned earlier in the module. If you like, open up this folder and see if you can identify any of the tools mentioned earlier.

FSTs

File System Translators (FSTs) allow GS/OS to access information stored on disks that have been formatted by other disk operating systems, such as ProDOS. In theory it's possible for GS/OS to read and write to disks that have been formatted in any operating system, so long as the appropriate FST has been loaded onto the startup disk. At the time of this writing, however, only two FSTs exist: ProDOS and High Sierra. High Sierra is the format used by CD-ROM discs.

Drivers

This folder contains device drivers. Drivers are files that tell GS/OS how to access peripherals, such as printers and disk drives. For instance, if you needed to print a document using an Apple ImageWriter II printer, you would first have to install the necessary driver on the startup disk.

Peripherals won't run until the corresponding drivers have been installed on the startup disk. A Unidisk 3.5-inch drive, even though it has been connected to the Apple IIGS, does not show up on the desktop as an icon. Without the UniDisk 3.5 driver, GS/OS can't detect it.

You will learn how to install a driver in the next section.

Exploring the System Disk

Fonts

The term font refers to size and style of typeface. (This workbook, for instance, uses the font Garamond.) This folder contains instructions for displaying and printing different fonts. As new fonts become available, they can be installed in this folder.

Desk.Accs

This folder contains Desk Accessories (DAs), the mini-applications discussed in the last section. As they become available, new DAs can be placed in this folder.

P8

P8 stands for ProDOS 8, an older version of ProDOS. ProDOS 8 was written for the 8-bit processors, the 6502 and 65C02, found in the earlier models of the Apple II. The Apple IIGS uses ProDOS 8 to run software written for Apple IIe and Apple IIc computers.

4. Close the System Folder.

Starting Up

When you boot up your system disk, the system files work together in a set sequence to load information from the disk into RAM and to create the desktop. The following outlines the major steps in the process. It also tells you what happens when key files are missing or damaged. You will use this information for identifying software problems in the Lab part of this course.

1. ProDOS is loaded into memory. ProDOS is responsible for starting up the operating system. If ProDOS is not on the disk, the message "UNABLE TO LOAD PRODOS " appears on the screen.

2. ProDOS loads START.GS.OS.

3. START.GS.OS loads disk drivers, GS/OS, ERROR.MSG, and GS/OS.DEV. If you were missing a critical file, an error message would appear on the screen:

   "Can't load (file name)."

4. Having served their purpose, START.GS.OS and ProDOS are both removed from RAM.

5. Other drivers are loaded

Exploring the System Disk

6. START, which contains the Finder application, is loaded and launched.
7. The desktop appears on the screen.

This section has provided you with a look at the system files necessary for operating the Apple IIGS, how they interact to start up the system, and what happens when critical files are missing.

Continue with the next section—Exercise: System Disk.

Exercise: System Disk

Introduction

Use this exercise to check your understanding of the preceeding section.

Part 1

Complete each statement by filling in the blank with the correct software term.

1. If you got the following message while starting up your Apple IIGS computer : "Unable to Load Tools", you'd know that the __________ folder was missing from your __________ folder.

2. If you got this message, "Unable to Load ProDOS", you'd know that the ________ file was missing from your ___________.

3. While the file ___________ on the GS/OS System disk is not actually an operating system, the application ___________ in the System folder is.

Continue with Part 2 of this exercise.

Exercise: System Disk

Part 2

Write a brief answer to each question in the space provided:

1. Why does the file called ProDOS have to be on the startup disk if GS/OS is to boot.

2. Where do you find the Finder on the system disk and why is it not called "Finder"?

Compare your answers to those on the following page.

Exercise: System Disk (Answers)

Part 1

1. Tools, System
2. ProDOS, startup or system disk
3. ProDOS, P8

Part 2

1. ProDOS is the first file loaded from disk into RAM when the system is booting. ProDOS contains instructions for loading GS/OS.
2. The Finder is contained in the file START. Once GS/OS is loaded into memory, it directs the system to launch the application called START. If you wanted a different application to appear instead of the Finder, you would put that application in the System folder and name it START.

   If the Finder is not named START, the desktop will not appear when you boot up.

Continue with the next section—Customizing Startup Disks.

Customizing Startup Disks

Introduction

In previous sections of this module you were introduced to the term *startup disk*, and you booted your system with a startup disk—the *Apple IIGS System Disk*. You learned how to create a backup system disk by copying the contents of the system disk onto another disk.

In this section you will take a closer look at startup disks. You will learn how to:

- Explain what a startup disk is
- Identify the GS/OS files required to make a disk a startup disk
- Identify which startup disk a system is currently using
- Add system files to a disk using the Installer
- Identify startup disks that operate without the Finder

As a Service Technician, you will use the Installer to perform software upgrades. The basic operational skills you will gain from this section are essential to your ability to effectively service the Apple IIGS.

Materials Needed

For this activity you will need:

- An Apple IIGS system set up and configured as follows:
  - Apple IIGS with minimum 512K of RAM
  - ADB keyboard and mouse
  - monitor
  - Two 3.5-inch disk drives, with one set as the startup drive.*
  - One 5.25-inch disk drive (preferably an Apple or UniDisk daisy-chained to the second 3.5 drive)

** One 3.5-inch drive will work for this activity, but will require many disk swaps and will take longer.*

- A backup copy of the *Apple IIGS System Disk*

- An *Apple IIGS System Tools* disk

Startup Disks

A startup disk is any disk, hard disk or floppy, that contains the system files necessary to start up and run the Apple IIGS. Every time you switch on the Apple IIGS, it checks the startup disk drive for a startup disk. If there is no disk in the drive, the following message appears on the screen:

CHECK STARTUP DEVICE

Customizing Startup Disks

If there is a disk in the startup drive, but it lacks some or all of the necessary system files, a message appears on the screen, indicating that files are missing. For instance, if the disk is missing ProDOS, the very first file that is loaded from disk into memory, the following message appears:

UNABLE TO LOAD PRODOS

What the Startup Disk Must Contain

What those necessary system files are depends upon what operating system you are using. If you are using GS/OS, you must have at least the items shown in Figure 45:

- All of the files contained in the System folder
- the Icon folder
- ProDOS (the system file discussed earlier, not the operating system)

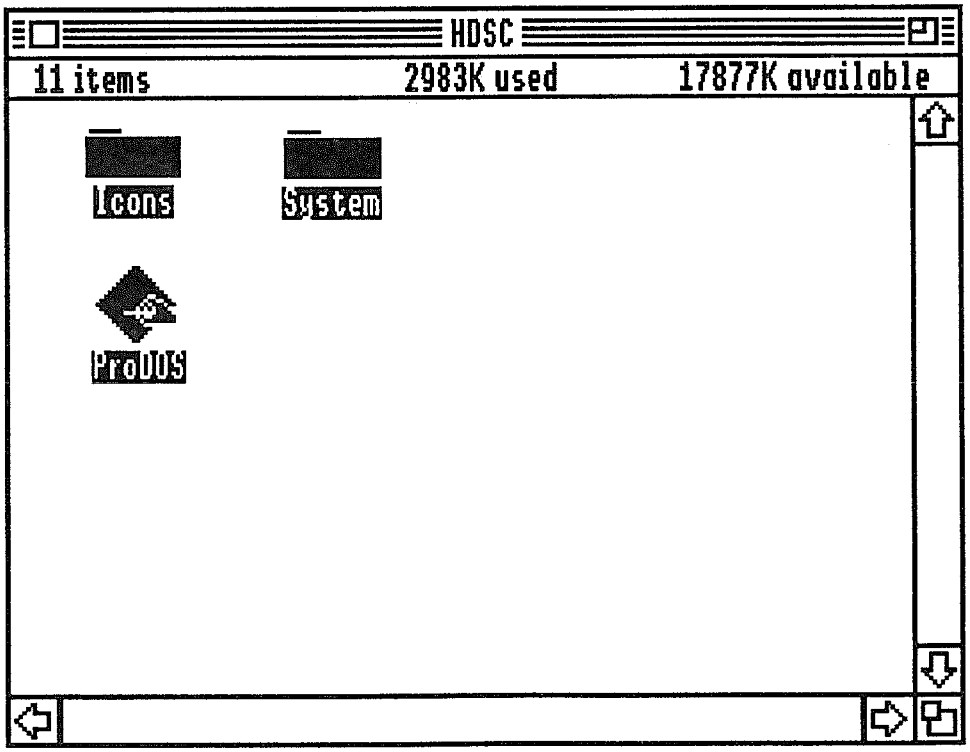


Figure 45. Files needed to use GS/OS

Customizing Startup Disks

You may also need other system files, such as drivers, if you want to perform certain tasks. These system files are contained in **update files**, on your System Tools disk. You will learn more about updates and how to add them to startup disks later in this section.

Identifying the Current Startup Disk

The icon for the current startup disk always appears in the upper-right corner of the desktop. Figure 46 illustrates the desktop on a system booted from the System disk.

Startup Disk

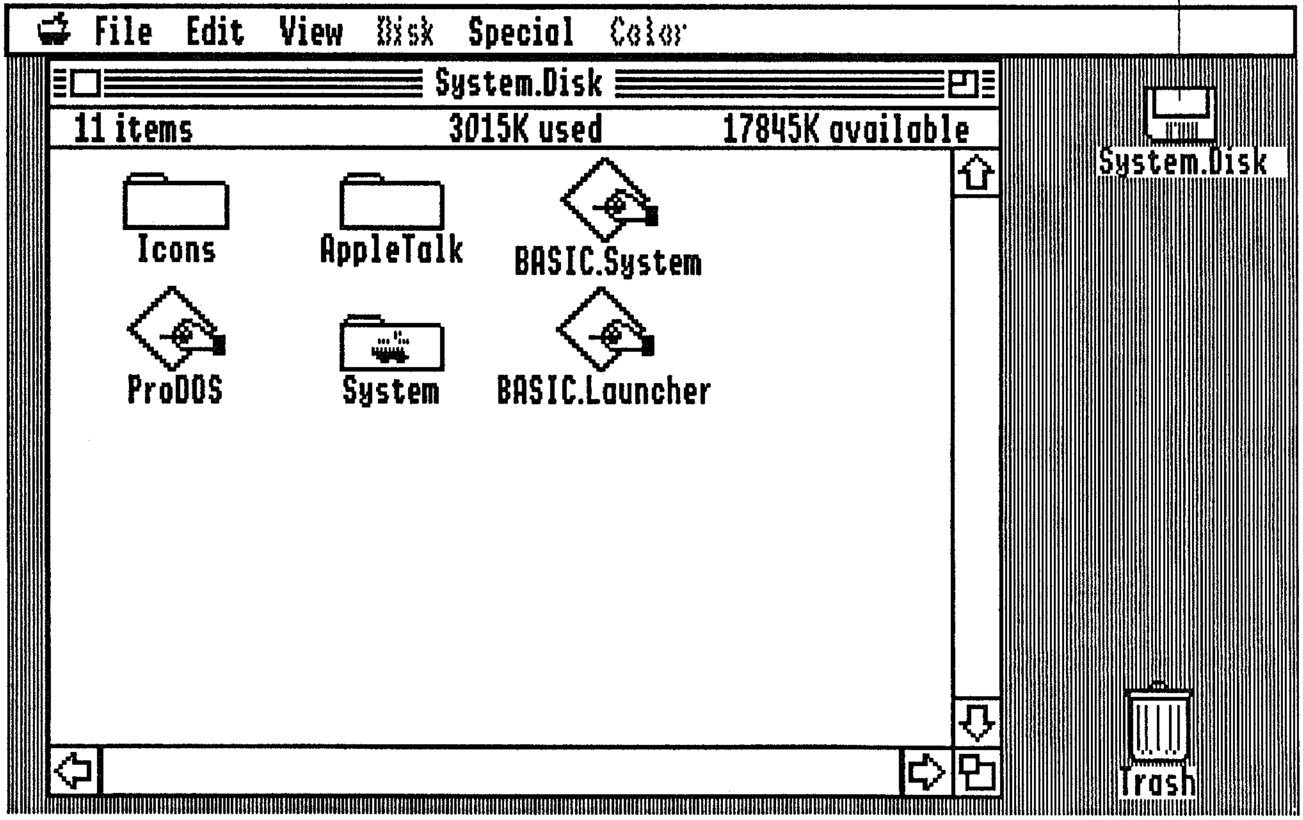


Figure 46. The current startup disk icon always appears in the upper right corner of the desktop

Creating Startup Disk

Earlier in this module, you created a startup disk by copying the entire contents of an *Apple IIGS System Disk* onto a newly initialized disk. You can also make disks into startup disks by:

- Dragging the necessary system files from the system disk onto the destination disk
- Transfer the necessary files using the Installer

Customizing Startup Disks

Making an application disk into a startup disk eliminates many disk swaps when using a single-drive system.

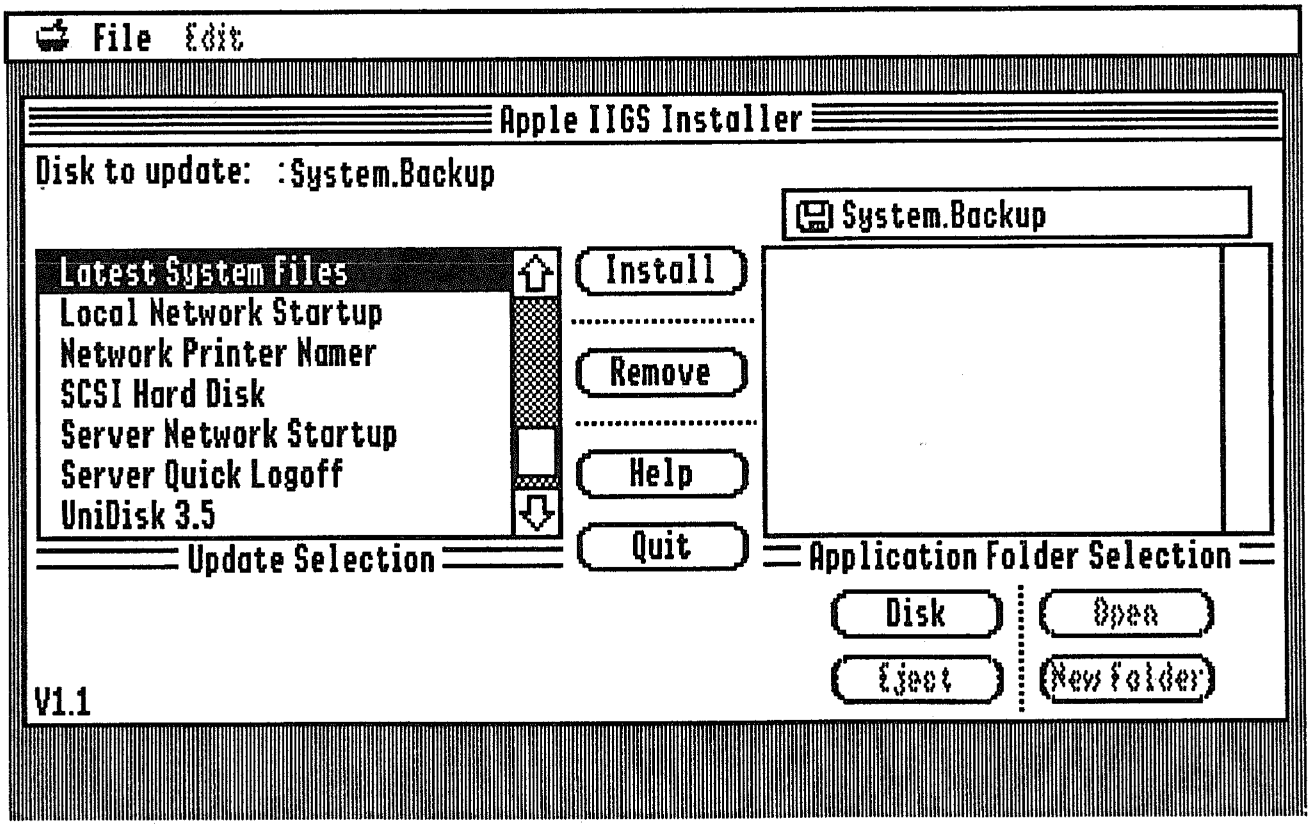
Most application disks are startup disks. Some of these startup disks support the Finder, while some only have enough system software to launch the application itself.

Updates

You will learn how to use the Installer when you add update files to your system backup disk, in the next section of this module.

An **update** is a file or a set of files that allow GS/OS to perform additional tasks. You add update files to the startup disk when you need the computer to run certain peripherals, use certain fonts, or access information on disks formatted by other operating systems. You remove update files (or other system files) when you need to free up space on your startup disk.

You add or remove update files using the Installer (see Figure 47).



Disk to update: :System.Backup

- Latest System Files
- Local Network Startup
- Network Printer Namer
- SCSI Hard Disk
- Server Network Startup
- Server Quick Logoff
- UniDisk 3.5

Figure 47. Updates available through the Installer

Customizing Startup Disks

Examples of different kinds of update files are given below:

Drivers

Before you can run a peripheral device, the corresponding driver must be on the startup disk (see the previous section, "Exploring the System Disk"). System disks come with many drivers already installed.

File System Translators

File System Translators (FSTs), as was mentioned in the last section, allow GS/OS to access information stored on disks that have been formatted by other disk operating systems, such as ProDOS and High Sierra.

Fonts

Before you can print a given font,you must install that font on the startup disk using the Installer. (You learned about fonts in the previous section.)

Latest System Files Update

System software, like all software, is constantly being revised and improved. As new versions of GS/OS are created, Apple makes them available to its customers.

You use the Latest System Files update to:

- Create a new Finder-based startup disk
- Update an existing startup disk that contains an earlier version of the Finder
- Add the Finder to an existing startup disk that doesn't have one

Note

When you install the Latest System Files, the Installer adds a file called *Start* to the System folder on the startup disk. (*Start* was discussed in the previous section, "Exploring the System Folder".) On many application disks that are also startup disks, the application is also called *Start* and is inside the System folder. (This is what causes the application to appear on the screen when you first boot up with an application/ startup disk.) Installing the Latest System Files update will remove that application and replace it with the Finder. The disk will then boot up the Finder, but the application will be gone. You may find this to be a recurring problem with some customers.

To prevent this, either change the name of the application before installing the updates or use the Latest Sys. Files (No Finder) update. The Latest Sys. Files (No Finder) update, as the name suggests, does not contain a Finder or any other file named Start.

Customizing Startup Disks

The Importance of Updates

Drivers and FSTs play a crucial role in making the Apple IIGS attractive to users of older Apple II systems. Apple II users upgrading to an Apple IIGS can still access applications, documents, and files created on and for older systems.

Adding Updates Using the Installer

The Installer is an application on the *System Tools* disk which transfers system update files from a *System Disk* or a *System Tools* disk to any startup disk.

Important: *The Installer will only recognize disks which are named System.Disk or System.Tools as* ***source*** *disks for update files.*

If you wanted to use your startup disk as a source disk, you would have to rename it System.Tools or System.Disk For the following activity you will only be using it as a **destination** disk, so you don't have to rename it.

In this section you will use the Installer to transfer update files from your *System Tools* disk onto your startup disk. You can use the same process to install system files onto any disk. For this activity, assume you have a UniDisk 3.5 drive and you need to install the corresponding driver onto your startup disk.

Follow these steps to use the Installer program:

1. Boot your Apple IIGS from your backup copy of the system disk.

2. Write-protect your *Apple IIGS System Tools* disk and insert it.

   If using a system with a single 3.5 drive, eject your startup disk first.

   If you are working with only one drive, you'll need to swap disks occasionally during the procedure. Follow the directions on the screen whenever the computer prompts you to insert the other disk.

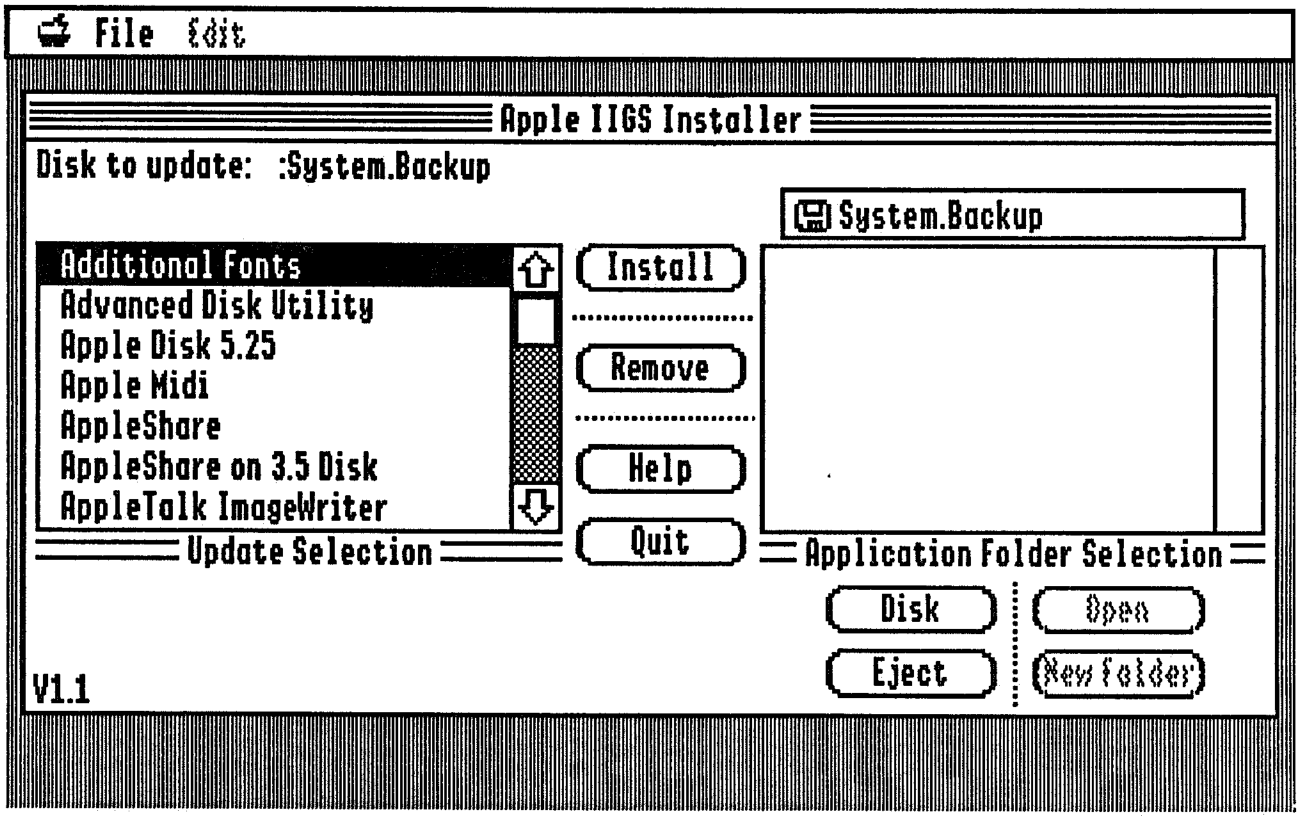
3. Open the icon labeled SYSTEM.TOOLS.

   Double click on it or select it and then choose Open from the File menu.

   Inside the SYSTEM.TOOLS window, you should see an application icon labeled INSTALLER.

Customizing Startup Disks

4. Open INSTALLER by double clicking it. You will see a screen as shown in Figure 48.



Disk to update: :System.Backup

Figure 48. The Installer window

The window on the left displays an alphabetical list of the scripts for all the updates available on the *System Tools* disk. The window on the right corresponds to the current startup disk on which you can install updates.

Note: *The window on the right will remain blank for this activity. If you selected an* ***application update****, such as the Advanced Disk Utility, the disk window would display a directory of that disk's contents. This activity is concerned only with system updates.*

If you wanted to install updates on a disk other than your startup disk, you would insert the desired disk and then click on the Disk button until the name of the disk you want appears above the window.

Customizing Startup Disks

5. Select the script for the update you want to install on your startup disk by clicking on it.

   In this case we want to install a driver that will allow the IIGS to run the UniDisk 3.5-inch disk drive: **UniDisk 3.5.**

6. Click on the Install button.

   A dialog box shows a series of messages to indicate the progress of the installation. After installation, a dialog box appears to let you know if the process was successful or not. If the process fails, the dialog box will indicate the reason.

7. Click OK, then click Quit. A dialog box will ask you to Restart or Cancel. Click Restart.

The computer does not recognize the newly installed updates on a startup disk until you restart the computer with that disk. If you had a UniDisk 3.5 drive with a disk in it daisy-chained to your Apple 3.5 drives, a disk icon would appear on the desktop after rebooting.

Removing Files

The more drivers, fonts, FSTs, and other updates you include on your startup disk, the longer it takes the computer to start up from that disk. There is also less space available on the disk for saving documents. Keep only the files you absolutely need on a startup disk.

The steps for removing files are almost identical to those given above for installing updates. The only difference is, when you get to step 6, you click Remove instead of Install.

Continue with the next section—Exercise: Working with Startup Disks.

Exercise: Working with Startup Disks

Directions

The following exercise will help clarify your understanding of how startup disks are created and customized. Answer the questions as indicated, then check your answers on the following pages.

1. Circle all of the statements below which are true.

   Startup disks:

   a) contain the files necessary for starting up and running the Apple IIGS

   b) can also be application disks

   c) must be locked to be used

   d) can contain different kinds of update files, depending upon the kind of peripheral devices and software used with a particular Apple IIGS system

Exercise: Working with Startup Disks

2. In order to make your application disk a startup disk, you need to transfer certain files and folders from your System disk. Write their names in the space below:

   ____

   ____

3. To print a document using a Laserwriter, you first have to:

   a) install an FST on the startup disk

   b) install a driver on the startup disk

   c) install a peripheral on the startup disk

4. Circle the letter of each true statement below.

   a) Backup disks are rarely used

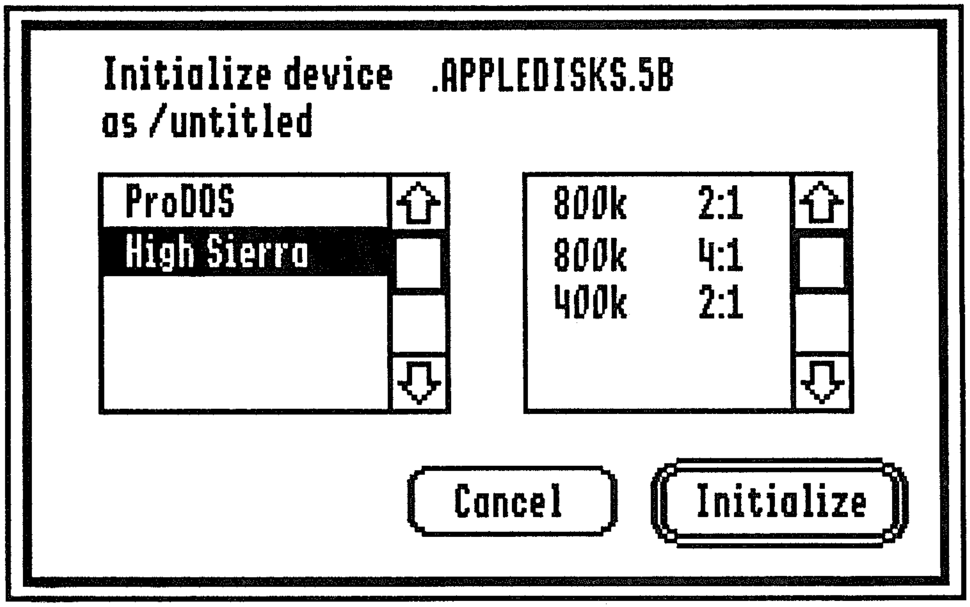
   b) The Installer only recognizes disks named SYSTEM.DISK and SYSTEMS.TOOLS as sources for update files

   c) Before updates can take effect, the system must be rebooted with the newly altered startup disk

   d) All startup disks are system disks

   e) Update files are always drivers.

Exercise: Working with Startup Disks



Initialize device .APPLEDISKS.5B
as /untitled

Figure 49. File Format Choices

5. Refer to Figure 49. Because High Sierra is listed as a formatting option, you know that which of the following has been added to the startup disk?

   a) the Installer

   b) a file system translator (FST)

   c) a driver

   d) system tools

Compare your answers with those on the following page.

Exercise: Working with Startup Disks (Answers)

1. a, b, and d
2. System folder, Icons folder, and ProDOS
3. b
4. True statements: b, c
5. b

Continue with the next section—Working With ProDOS.

Working With ProDOS

Introduction

This section introduces you to the ProDOS operating environment. ProDOS works on all Apple II computers. Much of the Apple II software that you will see on the market today will be ProDOS-based.

Using this operating system, you will learn how to

- Identify and catalog a diskette
- Copy a diskette
- Boot a diskette

Materials Needed

For this activity you will need:

- An Apple IIGS system set up and configured as follows:
  - Apple IIGS with minimum 512K of RAM
  - ADB keyboard and mouse
  - Monitor
  - One 5.25-inch disk drive
- *System Utilities Diskette* (Version 3.1 or later)
- A blank 5.25-inch diskette

ProDOS Operating System

ProDOS is short for Professional Disk Operating System. There are many different versions of ProDOS. You may see references to ProDOS 8 and ProDOS 16. ProDOS 8 is compatible with Apple II computers that use 8-bit microprocessors, the 6502 and 65C02. You can run the Apple IIGS with ProDOS 8-based software. ProDOS 16 was designed exclusively for the 16-bit 65C816 microprocessor used in the Apple IIGS.

The ProDOS user interface is quite different from the GS/OS desktop. GS/OS supports a graphics mode user interface: windows, icons, and fonts are all used in a graphical interface.

Text Mode Interface

The ProDOS interface uses the **text mode**. The text generator in the ROM creates an invisible grid of 24 rows and 40 or 80 columns on the monitor screen. Each square in the grid can hold one character (letter, number, punctuation mark, symbol, or space). The 80-column format fits twice as many characters in a line as does the 40-column format, but the characters are half as big.

Working With ProDOS

As you work with this interface, you will notice:

- The ADB mouse is not used; neither are icons, windows, or pull-down menus
- Selections are made from text menus using the arrow, Escape, and Return keys
- Commands must be entered from the keyboard

An FST in the System folder makes GS/OS compatible with ProDOS. GS/OS, however, cannot provide applications written for the ProDOS environment with a desktop interface.

You will sometimes encounter the ProDOS environment when troubleshooting the Apple IIGS. You need to understand some of the basic features of this operating system.

Before You Start

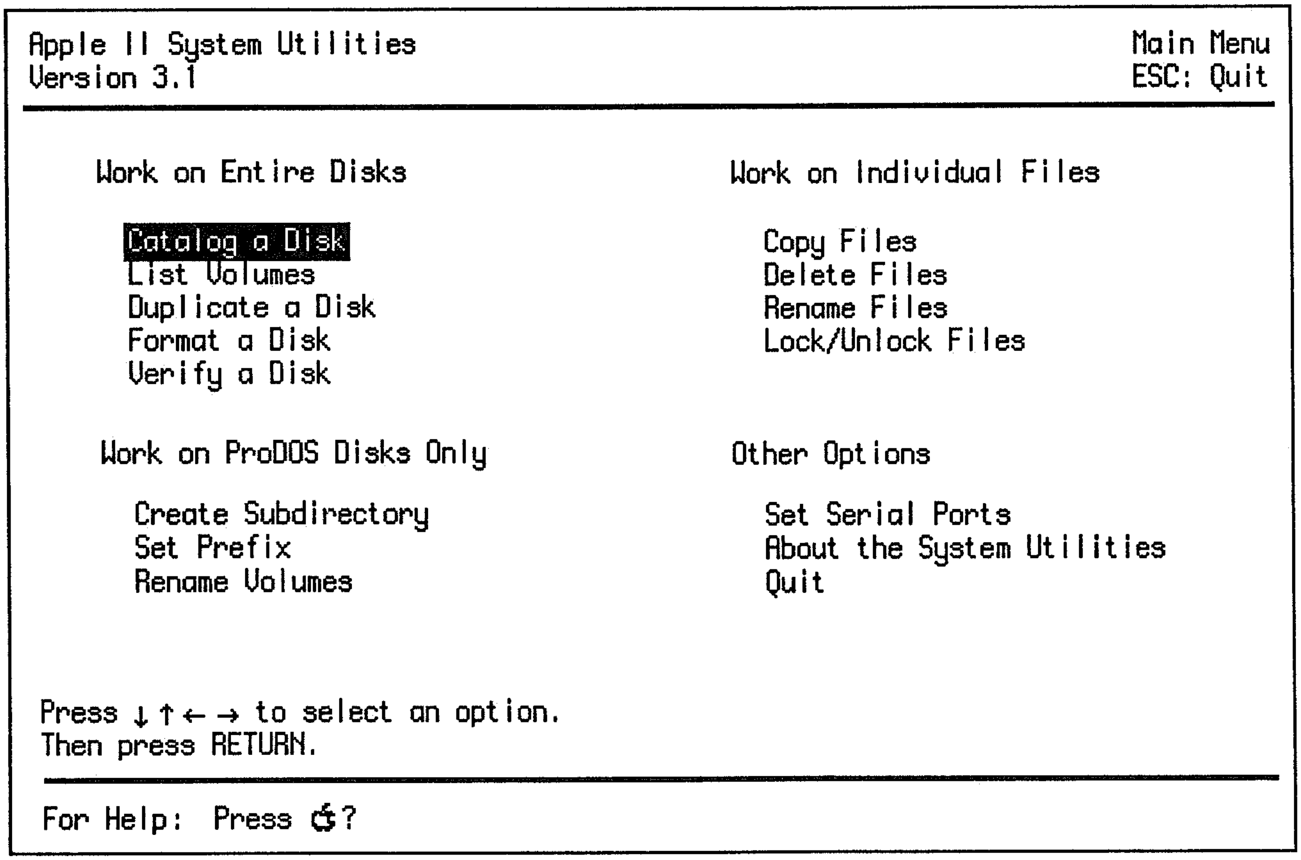
1. Locate a 5.25-inch *Apple II System Utilities* diskette (version 3.1 or later).
2. Enter the Control Panel and set the Apple 5.25 drive as the start-up drive.
3. Turn off the Apple IIGS.

Booting With ProDOS

The *Apple II System Utilities Disk* is a disk/file management system for Apple II CPUs. The following exercise will give you practice in using this ProDOS-based disk.

1. Insert the *Apple II System Utilities Disk* into the Apple 5.25 drive and power on the system.
2. Select System Utilities from the System Disk Main Menu by pressing Return. This will take you to the System Utilities Main Menu (See Figure 50).

Working With ProDOS



```
Apple II System Utilities                                     Main Menu
Version 3.1                                                   ESC: Quit

   Work on Entire Disks                 Work on Individual Files

     Catalog a Disk                       Copy Files
     List Volumes                         Delete Files
     Duplicate a Disk                     Rename Files
     Format a Disk                        Lock/Unlock Files
     Verify a Disk

   Work on ProDOS Disks Only            Other Options

     Create Subdirectory                  Set Serial Ports
     Set Prefix                           About the System Utilities
     Rename Volumes                       Quit


 Press ↓ ↑ ← → to select an option.
 Then press RETURN.

 For Help:  Press ⌘?
```

Figure 50. Apple II System Utilities - Main Menu (shown in reverse for clarity)

Comparing Interfaces

Notice that instead of pull-down menus, there are a number of menu options available at all times. Instead of using the mouse to move the pointer across the screen, you use the arrow keys to move around the screen and select menu items.

You have had experience with some of these options in the GS/OS environment:

Copy Files
Delete Files
Rename Files
Lock/Unlock Files
Format a Disk
Duplicate a Disk

Catalog a Disk is similar to opening up the disk icon and viewing its contents.

Working With ProDOS

Create Subdirectory is similar to creating and nesting folders on the desktop.

3. Try using the arrow keys to select menu items.

Identify and Catalog a Disk

4. Use the arrow keys to select **Catalog a Disk,** then press Return.

   The screen for identifying and cataloging a disk will appear.

5. **Slot and Drive** will automatically be selected, press Return.

6. After **Slot,** type **6** (this tells the CPU what slot to look for the disk drive in).

7. After **Drive,** type **1** (this tells the CPU what drive the disk to be cataloged is in).

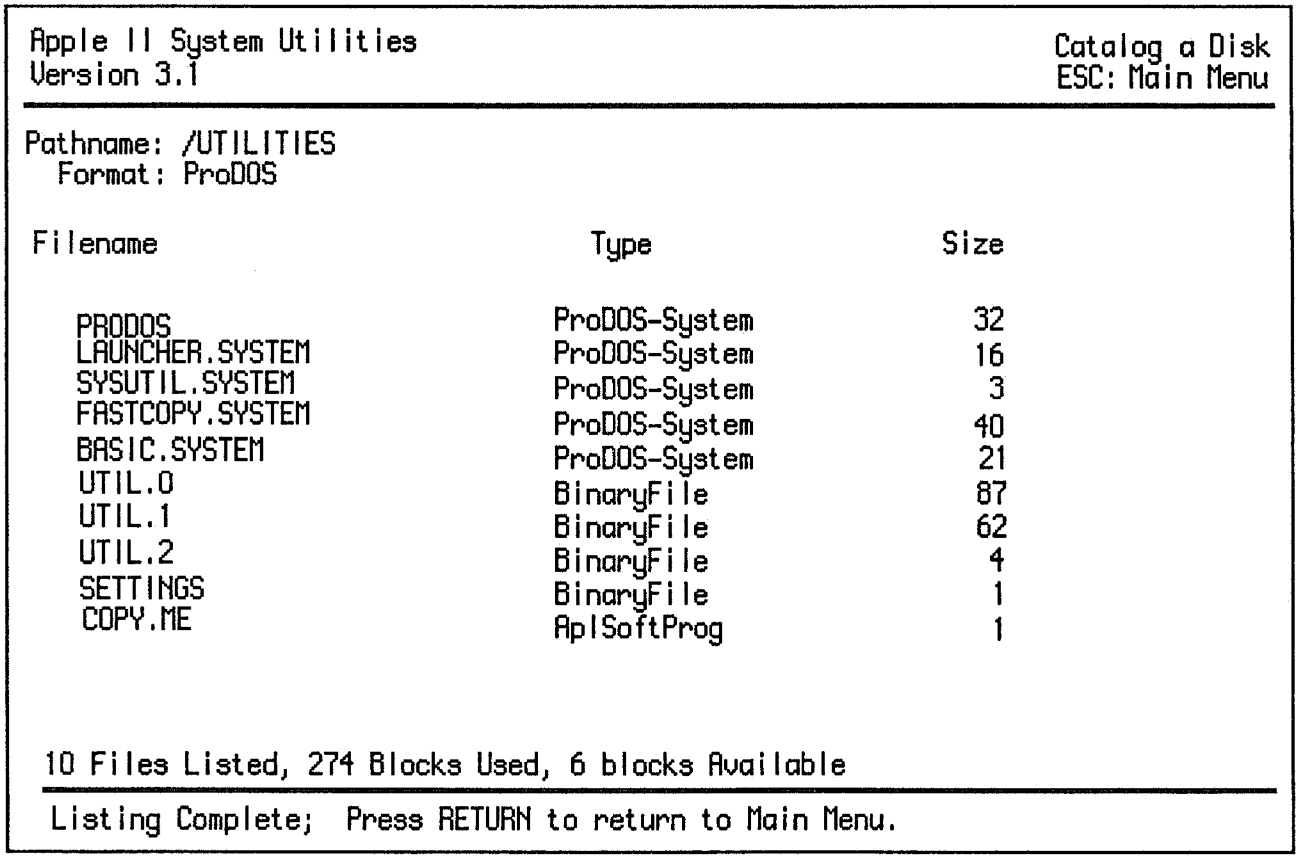
   You have selected slot number six and drive number one, where the *System Utilities Diskette* should be.

   A message will appear asking where you want the information displayed.

8. Press Return.

This will send the information to the screen. You will see something similar to what is shown in Figure 51.

Working With ProDOS



```
Apple II System Utilities                                  Catalog a Disk
Version 3.1                                                ESC: Main Menu

Pathname: /UTILITIES
  Format: ProDOS

Filename                       Type                 Size

   PRODOS                      ProDOS-System          32
   LAUNCHER.SYSTEM             ProDOS-System          16
   SYSUTIL.SYSTEM              ProDOS-System           3
   FASTCOPY.SYSTEM             ProDOS-System          40
   BASIC.SYSTEM                ProDOS-System          21
   UTIL.0                      BinaryFile             87
   UTIL.1                      BinaryFile             62
   UTIL.2                      BinaryFile              4
   SETTINGS                    BinaryFile              1
   COPY.ME                     AplSoftProg             1


 10 Files Listed, 274 Blocks Used, 6 blocks Available

 Listing Complete;  Press RETURN to return to Main Menu.
```

Figure 51. Apple II System Utilities - Catalog a Disk (shown in reverse for clarity)

9. Press **Esc** to return to the main menu.

Duplicate a Disk

10. Use the arrow keys to select **Duplicate a Disk**, then press Return.
11. After **Slot**, type **6**. Use the right arrow key to select the drive number and type **1.** Then press Return.
12. After **Slot**, type **6**. Use the right arrow key to select the drive number and type **1**. Then press Return.
13. Verify that the source diskette is in the 5.25 drive and press Return.

    A prompt asking you to name the new volume will appear.

Working With ProDOS

14. Press Return to accept the default name.

    The drive will whir, and you'll have to swap disks occasionaly. When the formatting and duplicating is complete, you will see a message on screen.

Note: *You may get the following message if the diskette has been used previously:*

Destroy (Name of diskette)

Type **Y** for yes.

15. Press Return to return to the main menu.
16. Power off the system.
17. Insert the copy you made into the 5.25 drive and power on the system.

    The **System Disk Main Menu** should appear.

Continue with the Module Summary.

Module Summary

Introduction

This section outlines the major points from this module. It does not cover *all* of the essential skills taught in this module.

Hardware, Firmware, Software

Routines that operate Apple IIGS hardware are stored on disks and loaded into RAM when needed (software) or are built into the ROM (firmware).

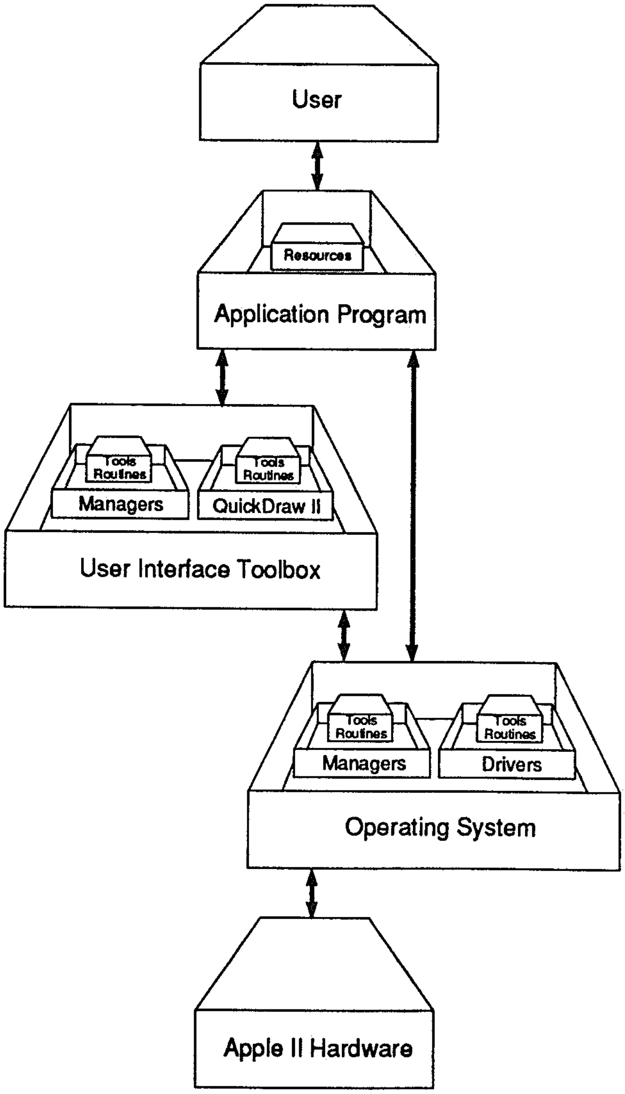


Figure 54. Apple IIGS system architecture

Module Summary

System Software	System software includes operating system, the tool box, managers, and device drivers.
Operating Systems	You can run the Apple IIGS with different operating systems: DOS 3.3, PASCAL, ProDOS, and GS/OS. This module focussed on GS/OS and ProDOS. ProDOS has a menu-driven interface that requires commands be input through the keyboard. GS/OS contains the **Finder**, an application that creates a graphics-based, mouse-driven interface called the **desktop.** Operating systems determine how a disk is **formatted** and what kind of **file system** is used to store information.
Toolbox	Also known as Tool Sets or just Tools, the Toolbox contains useful sets of data and instructions **(routines)** which applications may use (or **call**) to perform many commonly needed functions. For instance, Quickdraw II routines are called to create shapes and text on the screen.
Managers	Routines in the Toolbox are grouped according to function into sets of software and firmware **Managers**. The Print Manager, for example, controls printing by : 1) calling standard QuickDraw II routines to print text or graphics; and 2) calling upon the printing drivers to activate the printer.
Device Drivers	Drivers are special sets of instructions that tell the system how to run peripheral devices such as printers and disk drives.
FSTs	File System Translators allow GS/OS to access information stored on disks that have been formatted by other operating systems, such as ProDOS.
Startup Disk	A startup disk is any disk that contains the necessary files for starting up and operating the Apple IIGS. What those files are depends upon which operating system you are using.

Module Summary

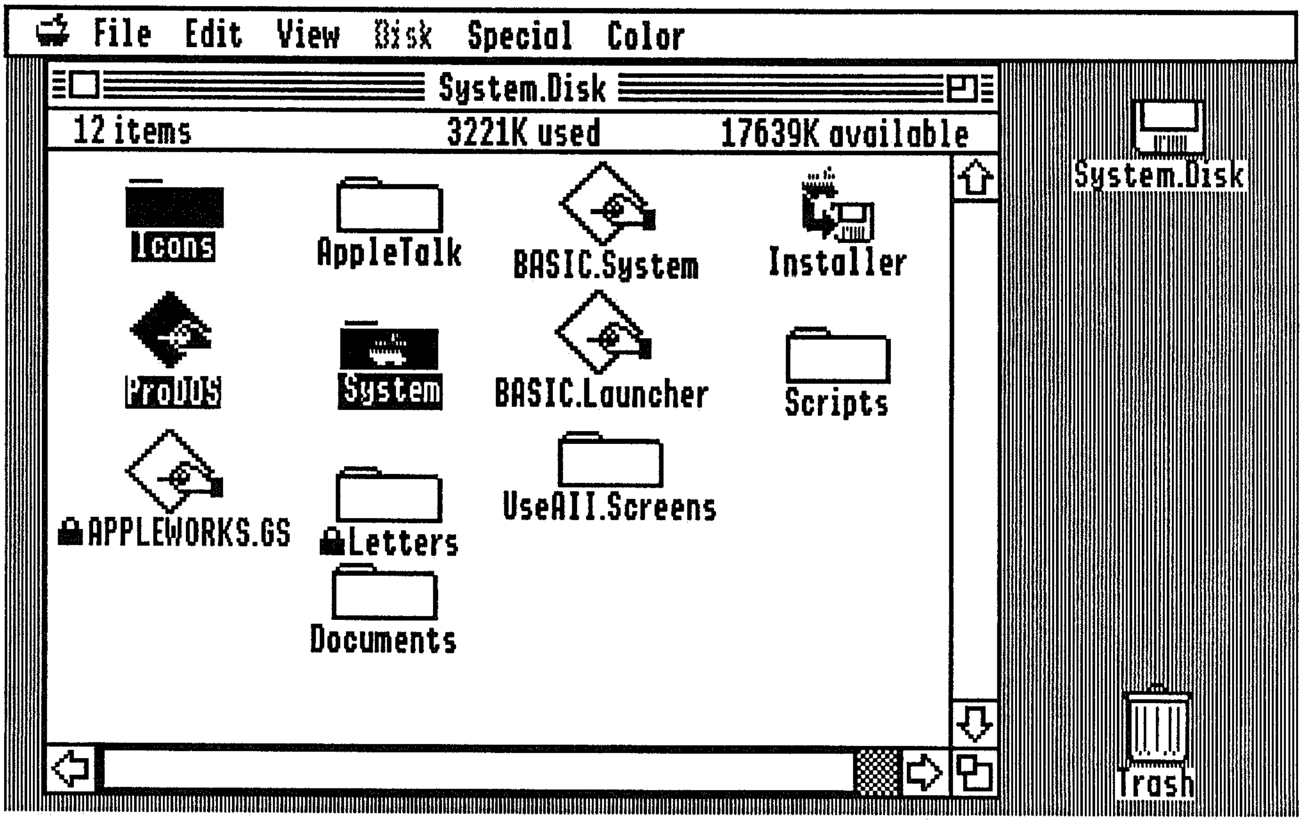


Figure 55. Startup disk files

A startup disk using GS/OS must include the System folder, the icons, and the ProDOS file. (See Figure 55.)

Customizing Startup Disks

Files are added to and removed from startup disks using the **Installer**. Files that are added, such as drivers or FSTs, are called **update files**.

Module Summary

Using the Desktop

You learned how to use the mouse when you used the *Your Tour of the Apple IIGS* disk. In the sections that followed, you learned how to use the three components of the desktop, **icons**, **windows**, and **pull-down menus** to launch applications, organize files and folders, lock files and folders, copy files from disk to disk, check for bad files, and damaged disks.

Using Applications

You created a simple word processing document, saved it to disk, edited it, and saved those changes under a new name.

Using Desk Accessories

You learned to access the Control Panel and other **desk accessories**, (mini-applications you can run on top of other applications) through the Apple menu.

Hierarchical Filing System

You also learned how the hierarchical filing system works by creating, naming, and "nesting" folders.

Using ProDOS

You also learned how to operate in a ProDOS environment. By making selections from a series of menus, you examined the contents of a disk (catalog a diskette) and copied all of the files from one disk onto another. Using the same process, you can now do many of the same tasks you did in the GS/OS environment (copy files, delete files, rename files, lock or unlock files, and format a disk).

Continue with the Module Test.

Module Test

Directions Answer as indicated:

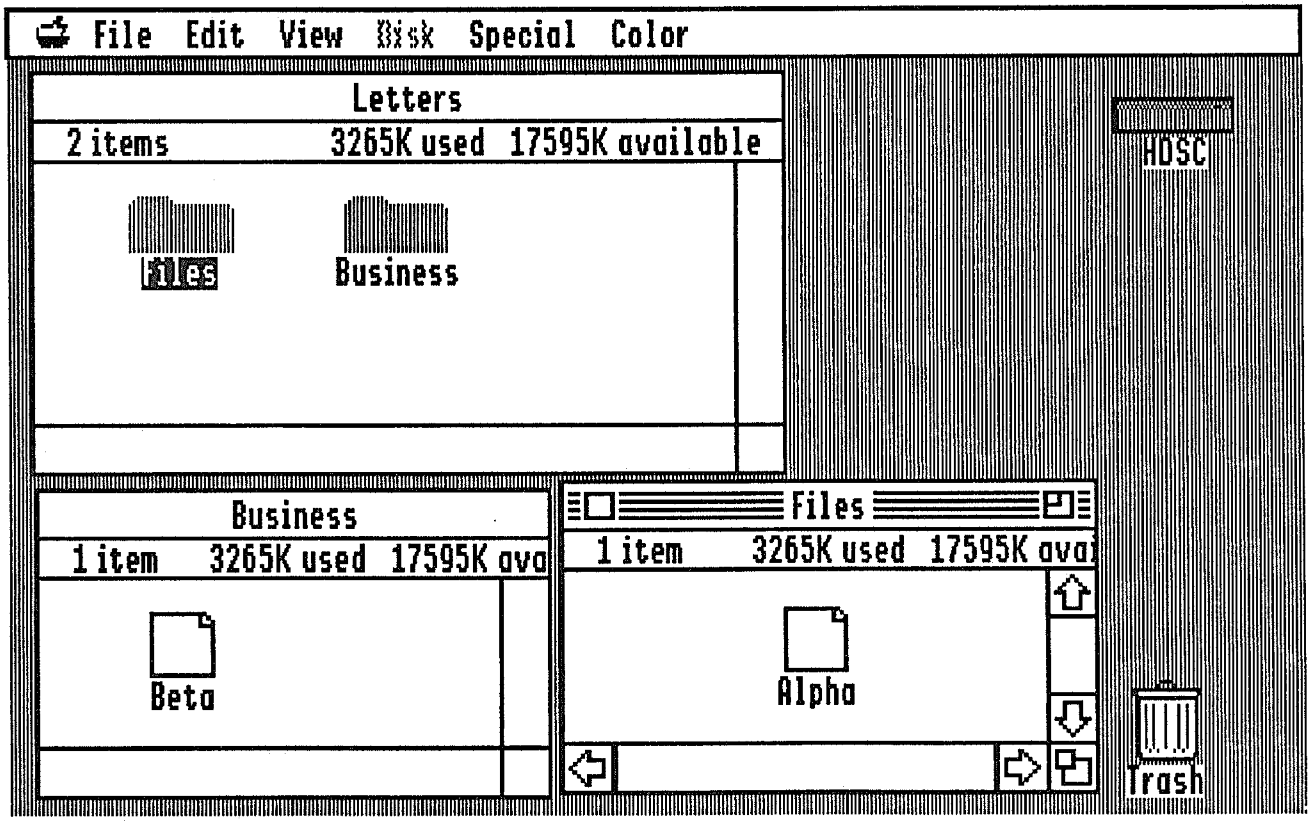

File
Edit
View
Disk
Special
Color
Letters
2 items 3265K used 17595K available
Files
Business
HDSC
Business
1 item 3265K used 17595K ava
Beta
Files
1 item 3265K used 17595K avai
Alpha
Trash

Figure 56.

1. Refer to Figure 56. The desktop displays files in folders. Circle the **folder** that contains the files shown in the *active* window.

Module Test

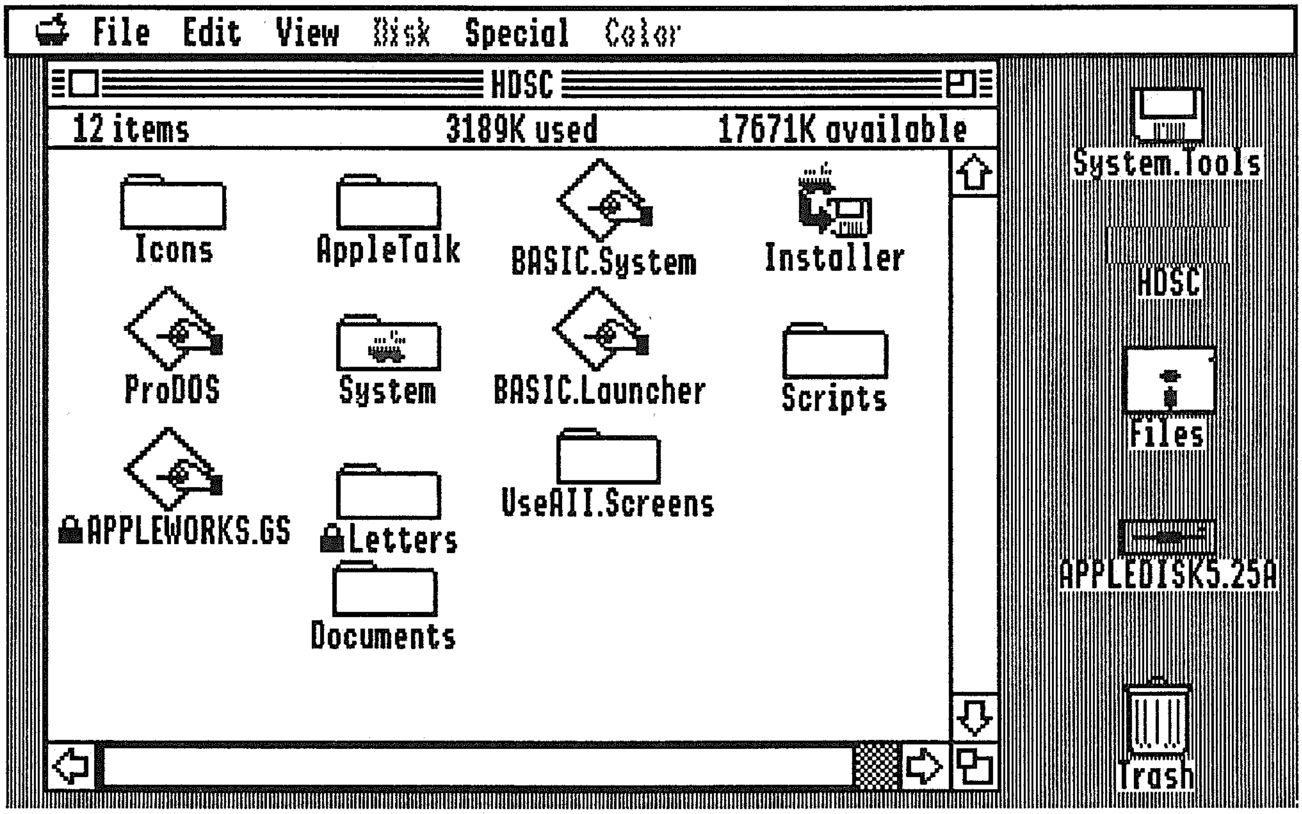


Figure 57.

2. Refer to Figure 57. Circle the icon representing the startup disk.

Module Test

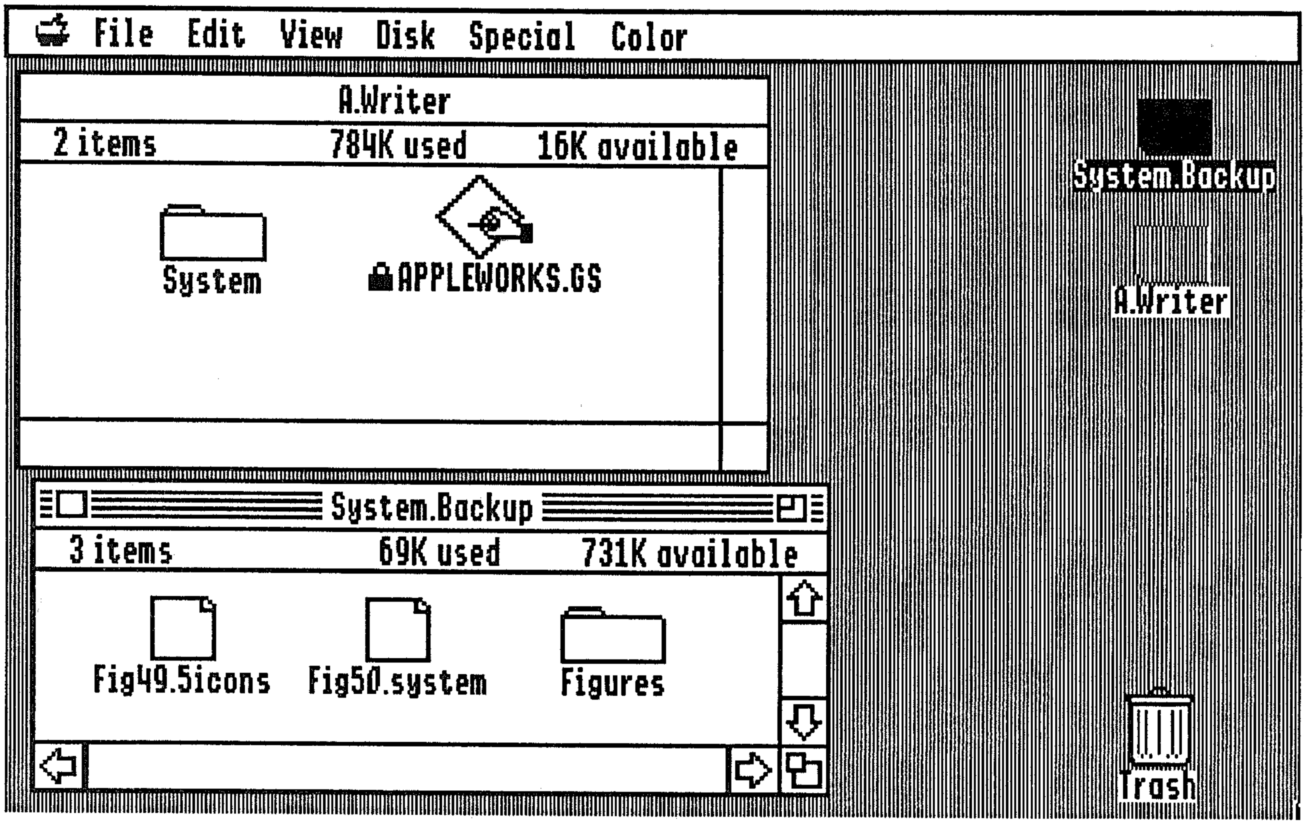
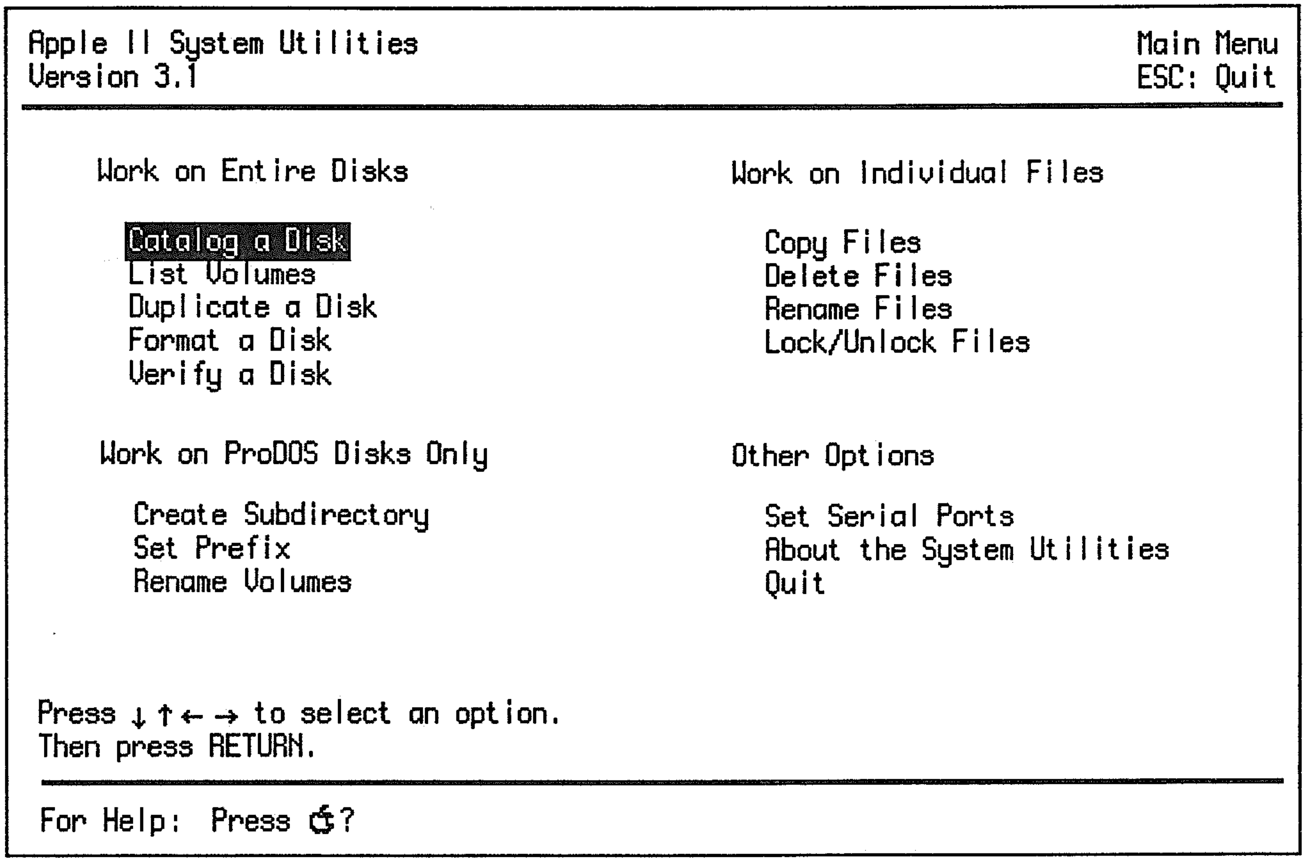


Figure 58.

3. Refer to Figure 58. The desktop displays three different kinds of icons. If you wanted to launch an application, such as a word processor, and at the same time open a document, what would you do? (Write a brief answer in the space below):

___

Module Test



```
Apple II System Utilities                                    Main Menu
Version 3.1                                                  ESC: Quit

   Work on Entire Disks                 Work on Individual Files

     Catalog a Disk                       Copy Files
     List Volumes                         Delete Files
     Duplicate a Disk                     Rename Files
     Format a Disk                        Lock/Unlock Files
     Verify a Disk

   Work on ProDOS Disks Only            Other Options

     Create Subdirectory                  Set Serial Ports
     Set Prefix                           About the System Utilities
     Rename Volumes                       Quit

 Press ↓↑←→ to select an option.
 Then press RETURN.

 For Help:  Press ⌘?
```

Figure 59.

4. Refer to Figure 59. Circle the menu option you would select to view the contents of the diskette.

Module Test

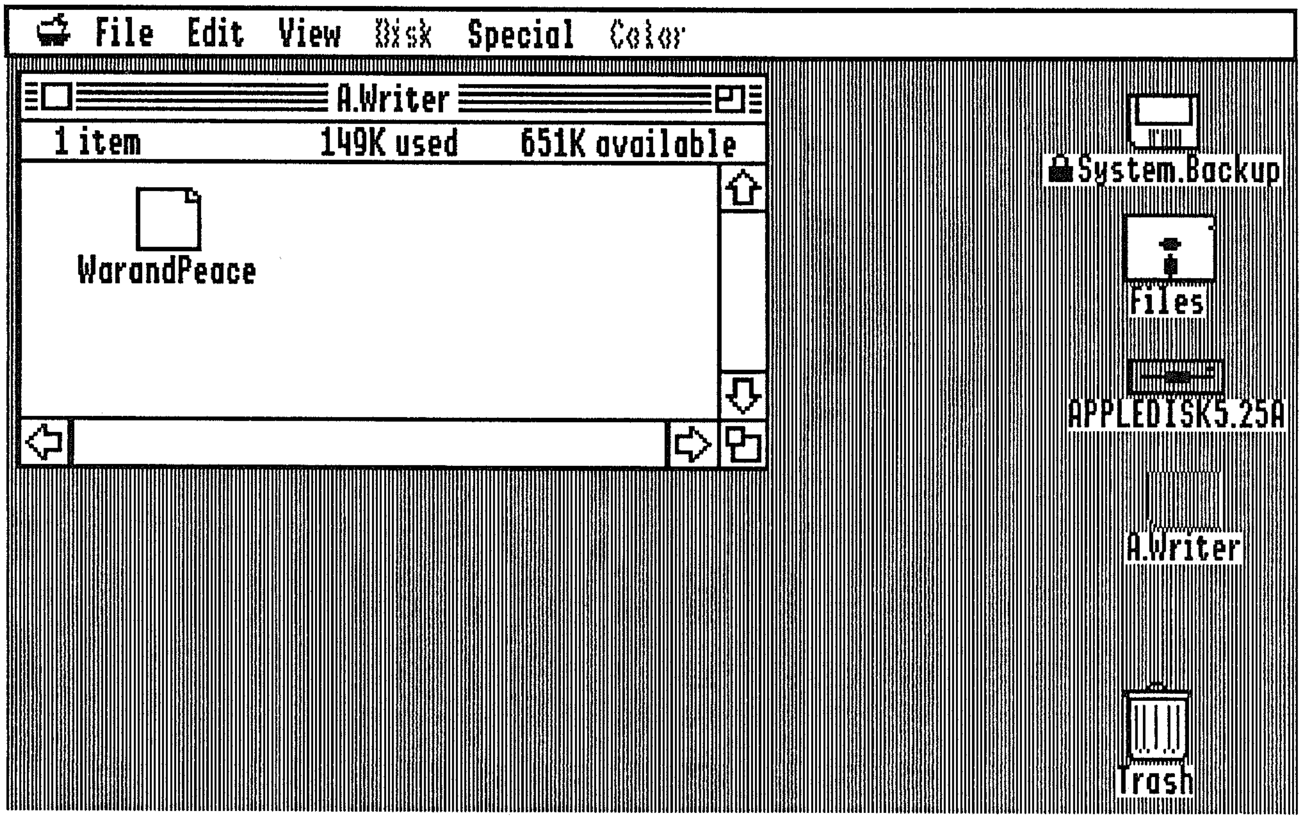


Figure 60.

5. For the next three questions, refer to Figure 60 . Answer as indicated.

   a) Your word processing document War and Peace is almost 150K. Which disk will you save it to?

   ____

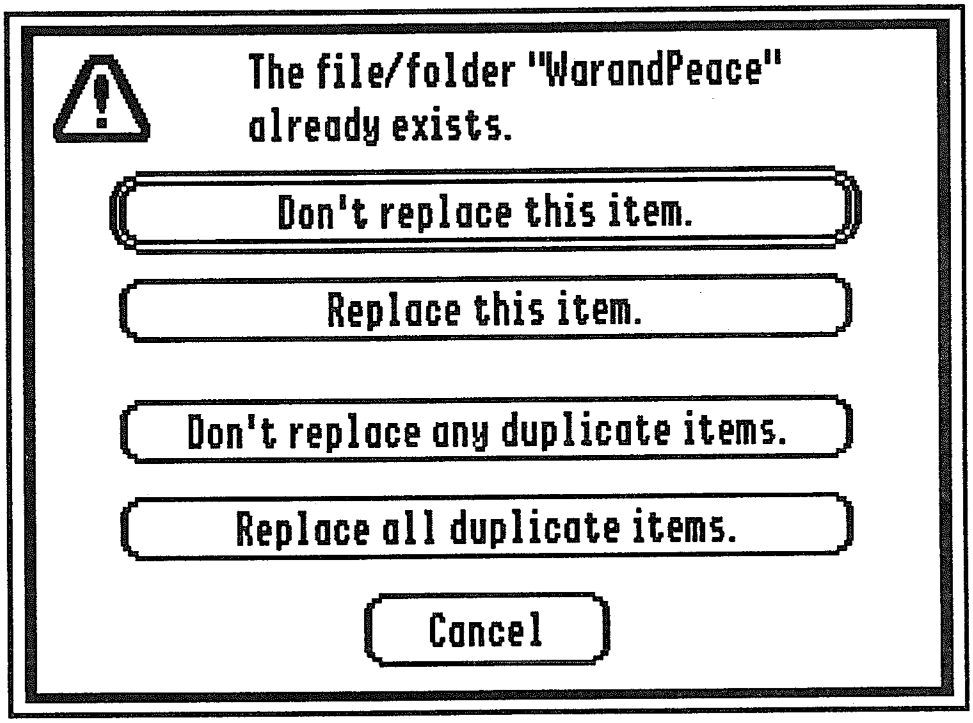
   b) If you wanted to save it onto the 3.5-inch disk, what would you have to do first?

   ____

   c) Which command would you use to do this? (check one)

   ___ Verify   ___ Icon Info   ___ Eject   ___ Validate

Module Test



The file/folder "WarandPeace" already exists.

Don't replace this item.
Replace this item.
Don't replace any duplicate items.
Replace all duplicate items.
Cancel

Figure 61.

6. Figure 61 shows a dialog box. Check all of the options that correctly complete the following sentence:

This dialog box:

___ A. Appears when there are two items with the same name on the desktop.

___ B. Sometimes occurs when you are copying a file or folder from one disk to another.

___ C. Can be avoided by locking one of the files or folders.

___ D. Can be avoided if you change the name of one of the duplicate files or folders before copying.

Module Test

7. Here is a list of hardware, software, and firmware terms. Below is another list of statements. For each statement, write the letter corresponding to the term being described. Some letters may be used more than once. Some are not used at all.

A. Resource manager
B. Desk Accessory
C. Operating System
D. ProDOS
E. Installer
F. Device Driver
G. Manager
H. Finder
I. Toolbox
J. ROM
K FSTs

____ Controls the exchange of information between an application and peripheral devices such as printers.

____ Is the name of the file that is loaded first when you boot up with GS/OS.

____ Contains the Control Panel desk accessory.

____ Is a set of routines grouped by function.

____ Is a mini-application that can be run from within applications.

____ Is an application that serves, creates and manages the desktop.

____ Are useful sets of data and instructions (routines) which applications may call to perform many commonly needed functions.

____ Is a program you use to add or remove updates from startup disks.

____ Determines both the user interface and the file system used to format disks.

____ What you are actually working with when you use GS/OS

____ Interfaces with the system hardware.

____ Contains QuickDraw II.

____ Allows GS/OS to access information on disks formatted by other operating systems, such as ProDOS and High Sierra.

Module Test

8. When you initialize a disk, what happens to it? Check all the correct answers.

___ A. Anything on the disk is erased.

___ B. The System Folder is copied onto the disk.

___ C. The disk is formatted to receive and store data.

___ D. The routines on the disk are updated.

9. Which of the following files must be on a startup disk before you can boot up GS/OS? Check all correct files.

___ A. the ProDOS file

___ B. the System folder

___ C. the Icons folder

___ D. the AppleLink folder

10. When you turn on your Apple IIGS you get the following message:

"SCSI Device requires a driver. Please install SCSI driver on boot disk and reboot system."

Where will you find the necessary driver?

A. in the Finder
B. the System folder
C. the System Tools disk
D. the drivers folder on your startup disk

Module Test

11. If you get the message "Unable to Load ProDOS" while booting, you know that:

___ A. this particular Apple IIGS will only work will the Professional Disk Operating System.

___ B. the disk in the startup drive is missing the System folder.

___ C. there is no disk in the startup drive.

___ D. the disk in the startup drive does not have the startup file named ProDOS on it.

Indicate whether the following statements are correct or incorrect by checking TRUE or FALSE.

12. Some Toolbox routines are built into the ROM.

___ TRUE ___ FALSE

13. Some Toolbox routines used by GS/OS are stored in the System folder on the System Disk.

___ TRUE ___ FALSE

14. Validate and Verify are two different names for the same operation.

___ TRUE ___ FALSE

Compare your answers with those on the following pages.

Module Test (Answers)

1. The FILES window is active, therefore, you should have circled the Files window.

2. The startup disk icon always appears in the upper right hand corner: (SYSTEM.TOOLS)

3. Double-click the document icon.

4. Catalog a Disk

5. a) The 3.5-inch disk. The document, since it is over 140K, is too big to fit on the 5.25-inch disk.

   b) Unlock it.

   c) Eject.

6. A, B, D

7. A. Resource manager
   B. Desk Accessory
   C. Operating System
   D. ProDOS
   E. Installer
   F. Device Driver
   G. Manager
   H. Finder
   I. Toolbox
   J. ROM
   K. FSTs

   F. Controls the exchange of information between an application and peripheral devices such as printers.

   D. Is the name of the file that is loaded first when you boot up with GS/OS.

   J. Contains the Control Panel desk accessory.

   G. Is a set of routines grouped by function.

   B Are mini-applications that can be run from within applications.

   H. Is an application that serves, creates and manages the desktop.

   I. Are useful sets of data and instructions (routines) which applications may call to perform many commonly needed functions.

   E. Is a program you use to add or remove updates from startup disks.

Module Test (Answers)

C. A class of software that determines both the user interface and the file system used to format disks.

H. What you are actually working with when you use GS/OS.

F. Interfaces with the system hardware.

I. Contains QuickDraw II

K. Allows GS/OS to access information on disks formatted by other operating systems, such as ProDOS and High Sierra.

8. A, C
9. A,B,C
10. C
11. D
12. TRUE
13. TRUE
14. FALSE

Reminder: *Be sure you can perform all of the tasks listed on the Skills Checklist.*

Before continuing with the next module, refer to the evaluation booklet and complete the evaluation for this module.